APPENDIX A

HISTORICAL AND LEGAL BACKGROUND

ATVs were first sold in the United States in the early 1970s. The initial models were designed with three wheels. The popularity of ATVs increased dramatically in the early 1980s, and models with a four-wheel design were introduced and became the predominant choice of consumers. Along with the sharp increase in ATV sales came an increase in ATV-related injuries and fatalities.

In 1985, CPSC published an advanced notice of proposed rulemaking ("ANPR") referencing reports of ATV-related deaths and estimates of increased injuries and seeking public comment on a range of possible regulatory options to address ATV-related hazards. 50 Fed. Reg. 23,139 (May 31, 1985). The various options identified included publication of safety information, development of voluntary standards, imposition of mandatory standards or product bans and a possible federal court action to declare ATVs an "imminent hazard."

A. Consent Decrees

The Commission established an ATV Task Force to conduct a year-long study of ATV safety. After receiving the Task Force's report, the Commission decided to pursue a civil action under Section 12 of the Consumer Product Safety Act ("CPSA"), 15 U.S.C. § 2061, seeking a judicial determination that ATVs are an "imminently hazardous consumer product." While the lawsuit was being prepared, the Department of Justice ("DOJ") and CPSC conducted negotiations with counsel for the ATV industry and reached agreement on a settlement. On December 30, 1987, DOJ filed an imminent hazard lawsuit against the five major distributors of

ATVs. See United States v. American Honda Motor Co., Civ. No. 87-3525 (D.D.C). On the same day, the CPSC and the five distributors entered into preliminary Consent Decrees settling the lawsuit. Four months later, in April 1988, the Court approved detailed Final Consent Decrees with a term of ten years.[1]

The Final Consent Decrees recited the government's allegations that ATVs are unique and complex vehicles which present a high risk of injury to users, and that the distributors had failed adequately to warn potential users about the hazards presented by ATVs. The lawsuit sought labels and warnings to advise consumers of the risks associated with ATV use, free training for ATV users and a repurchase program for three-wheel ATVs.

The Consent Decrees emphasized that because the case was being settled, the distributors had not had the opportunity to respond to these allegations, and that the distributors had not admitted the allegations or conceded that the government's legal or factual positions were valid. The distributors expressly denied, and noted they would contest the validity of, the government's allegations at any trial. The Consent Decrees further stated that the case was being settled without any admission of fault or liability or any adjudication of fact or law. In approving the final Consent Decrees, the federal district court confirmed the difficult and contested nature of the issues by noting "the government candidly states that its ultimate prospects in the litigation remain uncertain because there are both factual and novel legal obstacles to overcome. This is a correct appraisal." United States v. American Honda Motor Co., Civ. No. 87-3525 (D.D.C. Apr. 28, 1988).

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[1] There were actually two separate but largely identical Final Consent Decrees. One of the Decrees involved American Honda Motor Co., Inc., American Suzuki Motor Corporation, Kawasaki Motors Corp., U.S.A. and Yamaha Motor Corporation, U.S.A. The other Decree involved Polaris Industries Inc.

The Consent Decrees prohibited the distribution of new three-wheel ATVs, but also provided that the marketing and sale of such vehicles would be permitted to the extent they meet mandatory standards promulgated by CPSC or voluntary standards satisfactory to the Commission.

The Consent Decrees further required the distributors to offer free hands-on training courses to ATV purchasers and to emphasize safety information and warnings in ATV advertisements and promotional materials. The distributors were also required to represent affirmatively that ATVs with engine sizes between 70 cc and 90 cc should be used only by those 12 and older and that ATVs with engine sizes greater than 90 ccs should be used only by those 16 and older. The distributors committed to use their "best efforts," working through their retail dealers, reasonably to assure that ATVs would not be purchased by or for the use of any persons under these specified ages.

In addition, the Consent Decrees specified general warning, age recommendation, passenger warning and tire pressure recommendation labels for all new ATVs. The distributors were further required, through their dealers, to make available to actual and prospective customers a CPSC-approved video on ATV safety, and to provide prospective customers with a "safety alert" including warnings and ATV injury and death statistics. Finally, the Consent Decrees specified that the distributors would attempt in good faith to reach agreement on voluntary ATV performance standards satisfactory to CPSC.

B. ANSI/SVIA Voluntary Standard

Working through the Specialty Vehicle Institute of America ("SVIA"), the ATV Companies, CPSC staff and other interested parties initially developed and adopted a voluntary standard for four-wheel ATVs in 1989. The standard was reviewed and accepted as satisfactory

by the Commission. 54 Fed. Reg. 1407 (Jan. 13, 1989). In reaching this determination, CPSC noted that while the standard did not address lateral stability, each of the ATV distributors had separately agreed not to distribute ATVs in the future that had static lateral stability coefficients lower than the lowest value in its current production.[2] The standard was approved and issued by the American National Standards Institute ("ANSI") in 1990. The standard was reissued in 2001 with revisions made through a canvass process conducted by the SVIA Technical Advisory Panel ("SVIA TAP") following ANSI policies and procedures. A copy of ANSI/SVIA-1-2001 Four-Wheel All-Terrain Vehicles - Equipment, Configuration and Performance, is attached as Appendix K.

The current ANSI/SVIA standard sets forth specifications for equipment and configuration aspects of ATVs, including: mechanical suspension; throttle, clutch and gearshift controls; engine and fuel cutoff devices; handlebars; lighting; tires; and operator foot environment. The standard also establishes performance requirements for service and parking

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[2] The rider-active nature of ATV operation, the broad range of terrain over which ATVs operate, and the lack of a verifiable correlation between accident occurrence and lateral stability coefficients for four-wheel vehicles make it inappropriate to use a lateral stability coefficient for determining ATV performance or safety. During development of the voluntary standard in 1988, CPSC staff originally proposed that the standard should contain a provision requiring that ATVs have a static lateral stability coefficient ("Kst") of at least 1.0. However, in the 1991 *Federal Register* notice terminating its initial May 1985 ANPR on ATVs, CPSC reported that the vast majority of ATV-related deaths and injuries were due to operator behavior as the primary contributing factor. Lateral stability was determined to be a causative factor in only a small minority of the cases. In addition, CPSC examination of incident data showed no correlation between the lateral stability Kst level of four-wheel ATVs and the risk of injury. The CPSC therefore could not conclude that a standard requiring an increase in lateral stability Kst levels would significantly reduce ATV deaths and injuries. 56 Fed. Reg. 47,166, 47,171 (Sept. 18, 1991).

Similarly, in January 1991, CPSC engineering staff issued a report examining engineering issues associated with determining the feasibility of establishing further safety standards for ATVs. CPSC, Engineering Report on the Technical Feasibility of ATV Standards (Feb. 28, 1991). The report noted that further data analysis by the CPSC staff failed to establish a significant relationship between measured lateral stability values and risk of injury on ATVs. The engineering analysis also observed that requiring increased levels of stability for four-wheel ATVs could diminish the effects of rider activity and thereby degrade steering performance. Id. at 9.

brakes, and for pitch stability of the vehicle. In addition, the standard specifies requirements for youth ATVs regarding maximum unrestricted speed capability and speed limiting devices.

Since the ANSI/SVIA standard first became effective in 1990, vehicles distributed by the ATV Companies have met these specifications and requirements. All ATVs currently distributed by the Companies comply with applicable provisions of ANSI/SVIA-1-2001. See Appendix G (Leland Testimony). As explained more fully in Appendix D, this is not the case for many ATVs distributed by new entrants to the U.S. market.

C. Termination Of Previous Rulemaking

In September 1991, CPSC terminated the rulemaking proceeding initiated by the May 1985 ANPR based upon the conclusion that currently available evidence did not establish there was an unreasonable risk associated with the four-wheel ATVs then being sold. 56 Fed. Reg. 47,166, 47,173 (Sept. 18, 1991) ("Termination Notice"). The Commission noted that the injury rate per 10,000 four-wheel ATVs in use had dropped by about 50 percent from 1985 to 1989 (*i.e.*, from 391 to 217.8), and that the fatality rate had similarly fallen by about 40 percent during the same period (*i.e.*, from 1.5 to 0.9 per 10,000 four-wheel ATVs in use). The Commission also concluded that currently available information did not show that there were any modifications to the design of then current four-wheel ATVs that would reduce injuries and deaths. Finally, the Commission concluded that an overall ban of ATVs was not appropriate because a large portion of ATV use is for non-recreational purposes, because ATVs provide significant recreational value, and because there are no close substitutes for the product. Id. at 47,172.

The Commission noted its earlier acceptance of the ANSI/SVIA voluntary standard adopted in 1990, including its reliance on separate agreements with each ATV distributor not to manufacture in the future any ATVs with a static lateral stability coefficient less than the lowest

that was in the company's 1988 production. The Commission stated that the lowest such value in production in 1988 was 0.89, and that other models of that manufacturer, and all models of other manufacturers, had values higher then 0.89.

The Commission also pointed to a staff analysis of 1989 ATV-related deaths showing that in 131 of 163 cases, the fatal accidents were related to the actions of the operator, such as driving under the influence of alcohol, driving on public roads, or carrying passengers. Noting that many of the incident reports indicated that operator and environment factors were the primary reasons that the accident occurred, CPSC explained that these factors would not be addressed by changes in product performance standards. The Termination Notice went on to explicitly recognize that as long as ATVs were available for consumer use, there will be a certain irreducible level of incidents, no matter what standards are developed for ATVs. Id. at 47,170.

The Commission accordingly rejected the further development of performance standards for ATVs involving vehicle characteristics such as lateral stability, engine size, vehicle weight, or speed capability, and auxiliary protective devices such as roll cages. The Commission explained that in order to demonstrate under the CPSA that a rule establishing such performance standards is reasonably necessary to eliminate or adequately reduce an unreasonable risk, the Commission is required to show by substantial evidence on the record taken as a whole that the rule in fact will reduce injuries or deaths. Id. at 47,171. The Commission then acknowledged it could not demonstrate that increases in lateral stability, limits on vehicle weight, speed capability, engine power or size, or addition of devices such as roll cages would in fact result in reduction of ATV injuries and fatalities. Id. at 47,171-72.

For these reasons, the Commission concluded that further rulemaking was not appropriate for addressing the risks associated with ATVs and that the ANPR should be terminated. Id. at

47,173. However, the Commission noted that it was very important "ATV riders be aware of the risks involved so they can exercise appropriate precautions" and that the information provided to purchasers by the actions required by the Consent Decrees was essential toward this end.

D. ATV Safety Action Plans

With the final Consent Decrees nearing the end of their ten-year term, the CPSC held a public Forum on ATVs in May 1997. The purpose of this Forum was to discuss what measures, if any, could reasonably be taken after the Consent Decrees had expired to further reduce deaths and injuries associated with ATVs. In addition, the CPSC staff engaged in a number of information gathering activities concerning ATVs during 1997. The staff met with engineers for each of the ATV distributors to discuss evolutionary changes with regard to the vehicles since 1988, as well as then-current ATV technology. The staff reviewed, subject to confidentiality agreements, pertinent documents from each of the companies, including documents containing technical information, and information relating to product liability cases. The staff met individually with several engineers with experience in testifying on behalf of plaintiffs in ATV cases to solicit their views concerning the product. The staff also communicated with foreign government agencies concerning technical and/or legal requirements in those countries relating to ATVs.

Upon expiration of the Final Consent Decrees in April 1998, the ATV Companies that were parties to the action and Arctic Cat voluntarily agreed in written submissions to CPSC ("Action Plans") to undertake commitments (1) to maintain all of the key elements of the Consent Decrees relating to ATV safety and (2) to implement additional programs designed to deter the use of adult-size ATVs by children. In September 1998, CPSC sought comments on a proposed resolution to commend the ATV Companies for these efforts. 63 Fed. Reg. 48,199

(Sept. 9, 1998). The Commission expressed the opinion that these actions to further promote safe and responsible use of ATVs would enhance ATV rider safety and would "continue to be necessary for the foreseeable future." Id. at 48,203.

In December 1998, the Commission officially commended the ATV Companies for agreeing to undertake these safety "Action Plans." 63 Fed. Reg. 67,861 (Dec. 9, 1998).[3] The Commendation noted that CPSC would "continue to track the death and injury rate associated with ATVs." Id. at 67,862 (emphasis added). CPSC pointedly did not suggest the need for -- much less take -- any regulatory action regarding ATVs.

The specific components of the Action Plans that the ATV Companies are continuing to follow are summarized below.

1. Age Recommendations

Consistent with requirements originally established by CPSC as part of the Consent Decrees, each ATV Company has committed not to recommend, market, or sell adult-size ATVs (*i.e.*, with engine sizes greater than 90 ccs) to or for use by persons under 16. Each company has also committed to recommend, market, and sell only youth model ATVs with engine sizes 70 ccs or less for use by children aged six or older and 90 ccs or less for use by children aged 12 or older, with adult supervision. These youth model ATVs are equipped with speed limiters and other features specifically designed for children at least 6 and 12 years of age, respectively.

The ATV Companies have made extensive efforts to warn the public against the use of adult-size ATVs by children. These efforts have included several nationwide public safety campaigns, involving television and radio advertisements, and the distribution of thousands of brochures, posters, CD-ROMs, and classroom materials to public schools and libraries around

[3] This commendation notice did not include American Honda Motor Co., Inc.

the country. There is no evidence that the public is generally uninformed of the risks associated with the use of adult-size ATVs by children.

Moreover, upon entering a retail dealership, all prospective ATV purchasers are given numerous warnings against the use of adult-size ATVs by children. These include on-product labels, hang tags, safety videos, an "ATV safety alert," and other materials. There is no evidence that any actual ATV purchasers are uninformed of the risks associated with the use of adult-size ATVs by children.

2. Dealer Sales Directives and Undercover Monitoring Programs

The ATV Companies have also maintained age recommendation directives that prohibit their dealers from recommending or knowingly selling an adult-size ATV for use by a child under age 16. These directives are enforced through regular dealer monitoring conducted by the Commission and the ATV Companies.

Specifically, random and targeted investigations of dealers are conducted each year throughout the United States to monitor for compliance with the age recommendation directives. "Secret shoppers" attempt to purchase adult-size ATVs for use by children under 16, and report any violations of the age recommendation directives by dealers. These investigations are conducted both by CPSC and the ATV Companies. Dealers found to be in violation of the age recommendation directives are subject to disciplinary measures, including additional training, follow-up inspections, and potential termination of their franchise agreements.

The dealer monitoring programs were initiated in 1990 and have continued uninterrupted to date. The results of these efforts are reported annually to the Commission. Average industry compliance rates have ranged from 72 to above 90 percent upon initial investigations. Corrective actions are taken against non-complaint dealers and these dealers almost uniformly

pass subsequent inspections.

3. ATV Labels and Hang Tags

Each ATV Company has continued to use substantially the same warning labels on all new vehicles. These include general warning labels approved by the Commission, as well as labels specifically warning against the use of ATVs by children under the recommended ages. Separate labels are also used to warn against operation of single-rider vehicles with a passenger.

In addition, a "hang tag" containing the age recommendations and other safety information is supplied for each new ATV. These hang tags are displayed on each vehicle at the point-of-purchase, and the consumer must physically remove them after the purchase.

4. Owner's Manuals

The ATV Companies have continued to include in their ATV owner's manuals all of the substantive safety information required under the Consent Decrees. This includes multiple warnings against the use of vehicles by underage operators, as well as instructions for proper and safe operation.

5. Safety Alerts

The ATV Companies continue to provide each ATV purchaser with a "safety alert" at the point-of-purchase. The safety alert reiterates the principal warnings about safe and proper ATV use, including the age recommendations. Information concerning the estimated number of fatalities and injuries associated with ATVs is also provided, and is regularly updated by the ATV Companies.

6. Safety Videos

Every new ATV comes with a safety video or DVD for purchasers to review at home. Shortly after expiration of the Consent Decrees, the ATV Companies produced an updated version of the safety video that contained all of the substantive safety messages from the earlier

Consent Decree version. The age recommendations are given prominent treatment in the video, providing consumers with further exposure to this information.

7. Advertising

Consistent with the guidelines established under the Consent Decrees, each ATV Company's advertisements and promotional materials include the age recommendations and other safety messages. In addition, the guidelines require that ATVs be depicted in a manner consistent with safe and responsible use of the product, and set forth other restrictions. The ATV Companies have also continued to promote dealer compliance with these guidelines, including conditioning cooperative (*i.e.*, distributor-subsidized) advertising on such compliance.

8. Training

The ATV Companies have maintained their respective training programs post-Consent Decree. Most of the ATV Companies offer free, nationwide hands-on training under the direction of the ATV Safety Institute ("ASI") to purchasers of new ATVs and age appropriate members of their families. This ASI training is also made available to non-purchasers at a cost of $125 per adult and $75 per child even though these amounts do not fully cover the actual cost of providing the training through ASI. In addition, monetary or other incentives are offered by the ATV Companies to new purchasers to promote the training program. Children aged 6 to 11 and 12 to 15 are encouraged to participate in the course, and are only trained on youth-size models as designated by the Commission in the Consent Decrees (*i.e.*, engine sizes less than 70 ccs and 90 ccs, respectively). The training curriculum includes an emphasis on the age recommendations for ATVs.

9. ATV Hotline

SVIA continues to maintain a toll-free, twenty-four hour ATV safety hotline for its member companies. The ATV hotline provides safety and training information, including the

age recommendations for ATVs. The ATV hotline is promoted in the member companies' promotional brochures and print advertisements.

10. Three-Wheel ATVs

Each of the ATV Companies committed not to distribute new three-wheel ATVs in the United States unless and until such vehicles are subject to mandatory standards promulgated by CPSC or voluntary standards satisfactory to the Commission.

11. Voluntary Standards

As members of the SVIA TAP tasked with updating and revising the ANSI/SVIA voluntary standard for four-wheel ATVs, the ATV Companies committed to discuss and consider potential technical issues identified by the CPSC staff, in keeping with the procedures and requirements of the ANSI canvass process.

E. Denial Of Section 8 Petition

In 2002, CPSC docketed a petition from the Consumer Federation of America and other groups asking for issuance of a rule under Section 8 of the CPSA, 15 U.S.C. § 2057, banning the sale of adult-size four-wheel ATVs for the use of children under 16 years old. 67 Fed. Reg. 64,353 (Oct. 18, 2002). The following year, the Commission held three regional public hearings around the country and received written and oral comments from members of the public regarding the petition and ATV safety generally. Numerous comments at the hearings expressed a concern that the current engine-size based age-size guidelines were not adequate for all children and that some children are too large physically for these youth models which leads them to ride adult-size ATVs despite the manufacturer age recommendation.

In February 2005, the CPSC staff issued a briefing package recommending that the petition be denied. Briefing Package, Petition No. CP-02-4/HP-02-01: Request to Ban All-

Terrain Vehicles Sold for Use By Children Under 16 years Old (Feb. 2005) (the "Section 8 Briefing Package"). The Section 8 Briefing Package acknowledged that the risk of injury for children on adult-size ATVs is high and that the injury reduction benefits of getting children to stop using such ATVs are thus potentially substantial. However, it concluded that the effectiveness of the requested sales ban in achieving this goal is uncertain. Id. at 31.

The briefing package noted that the impact of such a ban is unclear since there is nothing to indicate that it would be more effective than the existing Action Plans, under which contractual agreements between distributors and dealers already prohibit dealers from selling adult-size ATVs for the use of children under 16 and purchasers are already informed in a number of ways at the point of sale that such adult-size ATVs are not intended for the use of children. Id.

The briefing package also explained that the sales ban would address how ATVs are sold rather than how they are used after they are purchased by consumers. The CPSC staff noted that since parents would still be able to purchase an adult-size ATV for themselves and then decide later to let their children use it, the ban's effectiveness would depend upon consumers taking the sales ban more seriously than the current warnings against allowing children under the age of 16 to operate adult-size ATVs. Id.

The briefing package went on to emphasize that it could not simply be presumed that a federal ban regulation would be taken more seriously by ATV owners:

> While a federal sales ban might send a message to some parents about the importance of following the age recommendations, there is little research to indicate that people would give more weight to a federal ban than to the warnings and information they already receive at dealerships and through other organizations. No data are available to show that a ban of ATVs for use by children under the age of 16 years would be more effective in preventing such use than the age recommendations in the Voluntary Action Plans. Id. at 31-32 (emphasis added).

The briefing package concluded that while the impact of a sales ban is uncertain, there would be a number of factors that would tend to limit its effectiveness, and the staff therefore recommended that the Commission deny the petition. Id. at 2.

The CPSC staff subsequently reiterated this recommendation in a response to oral testimony and written comments received on the briefing package. J. Elder & E. Leland, Staff Response to Testimony and Comments on CP-02-4/HP-02-1: Petition Requesting Ban of All All-Terrain Vehicles Sold for Use by Children under 16 years Old (Aug. 22, 2005). The staff rejected the charge that it was operating under the premise that a sales ban would have to be 100 percent effective before it could be justified. While acknowledging that the impact of a sales ban is to an extent uncertain, the staff pointed out "it is a real and likely possibility that such a ban would have little, if any, effect on the use of adult ATVs by children." Id. at 7.

In response to the charge that it had failed to analyze the benefits of the proposed sales ban, the staff stressed that insufficient information was available to fully estimate the benefits "because the likely effectiveness of the proposed sales ban in getting children off adult ATVs, if any, is unknown and therefore not quantifiable." Id. In response to the additional charge that the briefing package actually shows the proposed sales ban would have substantial benefits, the staff clarified that it had made "only a conditional statement that if an effective means of getting children off adult ATVs, and onto the youth models, could be found, it could potentially reduce the risk of injury by half and thereby result in substantial benefits." Id. at 8 (emphasis in original). The staff emphasized that in fact it concluded that "the effectiveness of a sales ban was uncertain and likely to be low in this regard." Id.

Finally, the staff rejected comments that its recommendation "deemphasize[d] the significant public health and monetary benefits that could be achieved with a national standard,

including the fact that moving children from adult-size ATVs to youth models could cut the risk of serious injury and death in half." Id. The staff stressed that while the Briefing Package was the source of this potential risk reduction estimate, it provided information to show that the requested sales ban would likely not effectively achieve these potential benefits. Id.

On July 12, 2006, the Commission voted 2-1 to deny the petition. In a statement accompanying her vote, Commissioner Nord explained she was persuaded by the staff's analysis that the proposed ban would be virtually unenforceable, and that it would be bad public policy to proceed with a ban which cannot be effectively enforced. She noted that the purpose of the requested ban was to prevent children from riding adult-size ATVs, but went on to point out that regulating rider behavior is not within the Commission's scope of authority. Having found no indication the petition would be effective in preventing such riding and thereby reducing ATV-related injuries to children, Commissioner Nord voted to deny it.

F. Chairman's Memorandum And 2005 ANPR

On June 8, 2005, CPSC Chairman Hal Stratton issued a memorandum to the CPSC staff asking for a review of ATV safety and recommendations on a number of issues. In particular, the memorandum directed the staff to consider whether the current ATV voluntary standards are adequate in light of trends in ATV-related deaths and injuries, and whether the current ATV voluntary standards, or other standards pertaining to ATVs, should be adopted as mandatory standards by the Commission. The memorandum also specifically asked the staff to review the possible addition of a new youth model ATV appropriate for 14 and 15 year-olds.

In response to the Chairman's memorandum and as part of its review of issues and potential actions relating to ATV safety, the staff prepared and the Commission issued an advanced notice of proposed rulemaking ("ANPR"). 70 Fed. Reg. 60,031 (Oct. 14, 2005). The

ANPR noted that the staff would examine the possibility of rulemaking to make aspects of the voluntary standard and the Action Plans into mandatory requirements. The ANPR also requested comments and information on a number of specific issues, including the feasibility and marketability of a transitional ATV geared to larger children and/or small adults, and the effects such an ATV might have on safety.

In response to the ANPR, the ATV Companies filed joint comments pointing out that their adherence to the ANSI/SVIA standard and implementation of the Action Plans, in combination with continuing support for state enactment of comprehensive legislation regulating ATV use, have been effective in addressing the issue of ATV safety. However, the comments also expressed concern that the established standards and safety programs were being undermined by an increasing number of ATVs from "new entrants" to the U.S. market which did not comply with the voluntary standard and did not provide consumers with the safety information and programs specified in the Action Plans. The ATV Companies reiterated their continuing commitments to meet the voluntary standard, including future revisions through the applicable ANSI consensus process, and to fulfill their Action Plan undertakings to implement key programs to promote ATV safety. The comments urged CPSC to take the necessary actions to require all other ATV manufacturers and distributors to do the same. The ATV Companies also urged CPSC to make renewed efforts, in partnership with the industry and other interested parties, to encourage and support the enactment of state laws regulating the use of ATVs.

As part of the comments, the ATV Companies submitted a preliminary report from Applied Safety and Ergonomics, Inc. ("ASE") of Ann Arbor, Michigan which supported the ANPR suggestion for possible development of a transitional ATV model. ASE concluded that further consideration of expanding the selection of ATVs available to youth under 16 by adding

a product category that accommodates larger 14 and 15 year-olds and many adults would be consistent with human factors data and human performance literature, as well as real world experience and market trends. ASE noted that development of such a transitional category could serve to enhance the credibility and relevance of age recommendations to parents and children, as well as other ATV safety messages, and could serve to reduce the frequency of 14 to 15 year-olds riding larger adult-size ATVs.

G. State ATV Legislation

The continuing efforts of the ATV Companies through SVIA have been instrumental in the enactment of state laws that prohibit the use of adult-size ATVs by children and establish other important safety requirements. For example, comprehensive ATV safety legislation that took effect in North Carolina on December 1, 2005. North Carolina had previously been one of only six states that had no ATV laws in place. SVIA worked closely with the North Carolina Child Safety Task Force to help craft the legislation and advocate its passage. These efforts included testifying before a Senate Committee and providing comments on the bill to legislators.

The North Carolina law incorporates all elements of the SVIA model state ATV legislation, with a few modifications. Major provisions include prohibiting the sale of ATVs greater than 90 cc for use by children under 16 and prohibiting parents from permitting children under 16 to operate such ATVs. The law prohibits carrying passengers unless the ATV is specifically designed for them and requires every ATV operator to wear a helmet and eye protection. It also prohibits ATV use on public roads or while under the influence of alcohol. Finally, effective October 1, 2006, the law requires every ATV operator born on or after January 1, 1990 to possess a safety certificate indicating successful completion of an ATV safety course sponsored or approved by SVIA's affiliate ASI.

On April 7, 2005, Governor Bill Richardson of New Mexico signed an ATV bill requiring children under the age of 18 to wear helmets and safety goggles and to complete a safety training course. The law will also require (1) that an adult be present to supervise a rider under the age of 18, unless that rider has a motorcycle license, instructional permit or provisional driver's license; and (2) that a rider 10 and under must be on an appropriate-size ATV.

In January 2004, West Virginia passed its first ATV safety legislation after almost ten years of lobbying by SVIA. The ATV legislation requires that all riders under age 18 must wear a helmet and complete an ATV rider awareness course. The legislation also prohibits (1) the carrying of passengers under age 18 unless certain requirements are met; and (2) the use of ATVs on certain roads. SVIA is continuing to support stronger ATV safety legislation in West Virginia, and such legislation is likely to be considered at the session beginning in January 2007.

There is no question that adoption and effective enforcement of state age restrictions on ATV usage can significantly reduce the number of injuries and fatalities involving children. For example, Dr. Heiden conducted an updated analysis of the change that occurred in the proportion of ATV-associated fatalities involving children in three states -- Kentucky, New Jersey and Texas -- that enacted legislation to regulate the use of ATVs by children under the age of 16. The Kentucky law prohibited operation of an ATV on public lands by a child under 16 years of age. The percentage of ATV-related fatalities sustained by riders under 16 declined from 55 percent before the law to 19 percent after its enactment. New Jersey prohibited both operation of an ATV on public lands by a person under 14 and operation of an ATV over 90 cc on public lands by a person under 16. The fraction of ATV-related fatalities involving children under 14 declined from 19 percent to 4 percent, and for riders under 16 decreased from 31 percent to 12 percent. The law adopted in Texas required adult supervision of all ATV operators under the age

of 14. The portion of ATV-related fatalities involving riders under 14 declined from 41 percent to 22 percent. (See Appendix F at 10.)

REVISION OF ANSI/SVIA-1-2001 STANDARD

Consistent with ANSI's policies and procedures, the SVIA has begun the process of reviewing the ANSI/SVIA-1-2001 standard for updating and revision using the canvass method. The ANSI revision process is guided by "the Institute's cardinal principles of consensus, due process and openness," and involves significant data gathering and input among a diverse range of interested parties. ANSI Standards Activities Overview. Participants in the revision of the ANSI/SVIA-1-2001 Standard include a wide range of stakeholders, including CPSC and other government agencies, such as Transport Canada, Road Safety Directorate; user groups, such as the National 4-H Council, the National Off Highway Vehicle Conservation Council, and the Pennsylvania Off Highway Vehicle Association; consumer interest groups, such as the Consumer Federation of America; engineering firms; various industry trade associations; dealers; and manufacturers and distributors. The SVIA TAP and CPSC staff also held public meetings in January, September, and October 2006 concerning the standard revisions.

The SVIA TAP mailed a proposed revision of the standard to canvassees on September 29, 2006. A copy of the canvass draft of the proposed revised standard is attached as Appendix L. The canvassees have voted and, in many instances, submitted comments to the standard revisions. On December 18, 2006, the SVIA TAP responded to each of the canvassees who submitted comments and will be modifying the revised standards to incorporate some of these comments. Ultimately, the revised standards will be submitted to ANSI for review and publication. The process facilitates a broad consensus on the best and most appropriate standards and requirements for ATVs.

The proposed revised standard continues to address design, configuration and performance aspects of four-wheel ATVs, including, among other items, requirements for

mechanical suspension, throttle, clutch and gear shift control; engine and fuel cut-off devices; lighting, tires, operator foot environment; service and parking brake/parking mechanism performance; and pitch stability. New areas covered by the proposed revision include: defining Type I and Type II ATVs; new Y-10 and Category T ATVs; requirements for Type II passenger handholds and footrests; new requirements for labels, owner's manuals, hang-tags; and a compliance certification label.

1. Scope

Section 1 of the proposed standard revision notes that the revised standard establishes minimum requirements for four-wheel ATVs, effective immediately for models produced after the date the standard is approved. An exception is provided for provisions regarding the new Category Y-10 and Category T ATVs, which shall become effective four years after the date of approval. ATVs that meet the definition and the requirements of the standard for Category Y-10 and Category T may, however, be produced at the option of a manufacturer, prior to the effective date of those provisions. The proposed revision also provides that the definition and other requirements for Category Y-12 ATVs shall expire four years after the date the standard is approved.

2. Definitions

Section 3 of the proposed revised standard would subdivide ATVs into two types, as designated by the manufacturer. A Type I ATV is intended for use by a single operator and no passenger. A Type II ATV is intended for use by an operator or an operator and a passenger. It is equipped with a designated seating position behind the operator designed to be straddled by no more than one passenger.

The proposed revision would drop the Category U (Utility Use Model) ATV in favor of an expanded Category G (General Use Model) ATV that is intended for recreational or utility use by an operator age 16 or older. A new Category Y-10 ATV would be added under youth models, along with Category Y-6 and Category Y-12 ATVs. In addition, a new Category T (Transition Model) ATV would be added to the standard. A Category T ATV is a transitional model ATV of appropriate size that is intended for recreational use by an operator age 14 or older under adult supervision, or by an operator age 16 or older. As in the current standard, the Category Y and T Model ATVs would not be defined by engine size limitations.

Type II ATVs would be limited to one intended usage category. A Category G (General Use Model) Type II ATV is an ATV intended for recreational or utility use by an operator age 16 or older and a passenger.

3. Passenger Handholds

Section 4.12 of the proposed revision specifies that all Type II ATVs must have two handholds, one located on each side of the passenger seating area in a symmetrical manner. The handholds must be designed in such a way so that each is able to withstand, without failure or permanent deformation, a vertical force of 1,000 N (224 lbf) applied statically to the center of the surface of the handle. The handholds must also be designed to allow the passenger to dismount without interference.

4. Foot Environment

Section 4.16.2 of the proposed revised standard would specify that all Type II ATVs have a foot support structure or other design feature for the operator and a passenger which meets specified configuration requirements. This configuration is intended to reduce the possibility of inadvertent contact between the feet of the operator and passenger and the ground immediately in

front of the rear tire or the rear tire itself. Different zones are defined for ATVs equipped with foot pegs and foot boards.

5. Lighting Equipment

Section 4.17 of the proposed revised standard specifies that all ATVs except Category Y shall have, and Category Y may have, one headlamp projecting a white light to the front of the ATV, and at least one tail lamp projecting a red light to the rear. All ATVs may also be optionally equipped with a stop lamp or combination tail-stop lamp, and such lamp shall be illuminated by the actuation of any service brake control.

Category G, T and S ATVs can be expected to be used at night or under low-visibility conditions. In the case of recreational use, this might be because the operator elects to ride under those conditions, or because, after participating in some activity it may not be possible to return to base during daylight. In the case of utility use, operation may not coincide with daylight hours or the unit may be used in an area where artificial lighting is needed. Accordingly, there are occasions when lighting equipment is required or desirable for the purpose of illumination or identification or both.

The proposed revised standard would allow, but not require, headlamps and tail lamps on Category Y models. Headlamps and tail lamps can be beneficial under certain riding conditions, such as heavy brush, dusty or shaded trials and similar low-light conditions during the day. Allowing headlamps is also appropriate to provide lighting on those occasions when a group of riders, including Y-model riders, are inadvertently or unexpectedly riding after dark.

6. Owner's Manual/Operator's Manual

Section 4.22.2 of the proposed revised standard would add informational requirements for ATV manuals that are provided with the vehicle at the point of sale. Among other things, the

age recommendation for the particular ATV model would have to be stated on the front cover of the manual. Warning and caution statements must be consistent with the current ANSI Z535.4 standard. The manual must contain introductory safety messages regarding the importance of reading the manual prior to operation, the importance and availability of training and the importance of the age recommendation.

The manual would also have to contain an introductory safety section, appropriate table of contents, and descriptions of locations of warning labels, as well as a pre-operating inspection procedure. The manual would further need to provide a description of proper operating procedures and potential hazards associated with improper operation of the vehicle. For Category Y and T ATVs, a notice to parents would be included emphasizing that the ATV is not a toy as well as the importance of adult supervision for operators under 16 and of children completing a training course. Finally, the manual must describe proper maintenance, storage and transportation procedures, and include on its outside back cover the contents of the general warning label.

7. Labels

Section 4.24 of the proposed revisions would add a section specifying the location and content of four different labels for Type I and Type II ATVs. All of the labels must meet the requirements of the ANSI 535.4-2002 standards for product safety signs and labels with respect to both format and durability.

The proposed revisions would require all Type I ATVs to bear on the left front fender the updated General Warning label developed for the ATV distributors by outside expert Miller Engineering and approved by the CPSC General Counsel in 1996. The label includes four icons and a number of specific text warnings and instructions. The vehicles would also have to display

a specified Passenger Warning label located on the vehicle body to the rear of the seat or on the rear of the seat itself so as to be easily read by a potential passenger. This passenger warning label was also developed by Miller Engineering in 1996 and approved by the CPSC General Counsel. It contains both an icon and text warnings.

A specified age recommendation warning label for that particular model must be affixed to the ATV so as to be easily read by the operator when seated in the proper operating position. Finally, the ATV must bear a label warning about maintaining air pressure in the ATV's tires and avoiding overloading. This label is to be affixed to the left rear fender above the axle facing outward in a position where it can be read by the operator when mounting the vehicle.

Type II ATVs are to bear four similar specified labels in similar locations.

8. Hang Tags

Section 4.25 of the proposed revised standard would require every ATV to be offered for sale with a hang tag on display that provides the appropriate age recommendation and information on the category of intended usage. The hang tag would have to be attached to the ATV and only removed by the first purchaser.

The hang tag must be 4" x 6" in size and contain a reproduction of the general warning label on one side. For Type I ATVs, the other side for Category G and Category S Models would contain the statements "No operator under age 16" and "Operator only, no passenger." The hang tag would also contain the statement: "Training courses to teach ATV riding are available. For information contact your dealer." The hang tag would further direct the purchaser to "Check with your dealer to find out about state or local laws regarding ATV operation."

For Type II ATVs, the opposite side of the hang tag would indicate "Category G: General Use Vehicle" and contain the statement "No operator under age 16." The hang tag

would also include similar statements regarding the availability of training courses and checking with the dealer about state and local ATV laws.

The proposed requirements for a point of sale hang tag are designed to inform consumers of the intended purpose and use category of the vehicle, the relevant age limitations for that model, the availability of training, and to provide a copy of the General Warning label to allow potential customers to make an informed purchase decision.

9. Category Y and T ATV Speed Capability Requirements

Section 6 of the proposed revised standard provides that when tested with any removable speed limiting device removed and with any adjustable speed limiting devices adjusted to the maximum, the maximum speed capability of Category Y-6 ATVs shall be 24 km/h (15 mph) or less. The maximum speed capability of Category Y-10 and Category Y-12 ATV shall be 48 km/h (30 mph) or less and the maximum speed capability of Category T ATV shall be 61 km/h (38 mph) or less. This represents no change in maximum unrestricted speed capability for Category Y-6 and Y-12 ATVs as specified in the ANSI/SVIA-1-2001 standard.

The proposed revised standard further specifies that speed limiting devices for Category Y-6 ATVs shall be capable of limiting maximum speed to 16 km/h (10 mph) or less and that such devices for Category Y-10 and Category Y-12 ATVs shall be capable of limiting maximum speed to 24 km/h (15 mph) or less. Here again, this represents no change from the current ANSI/SVIA standard with respect to Y-6 and Y-12 ATVs.

The proposed revisions specify that speed limiting devices for Category T ATVs should be capable of limiting maximum speed to two separate levels, 32 km/h (20 mph) and 48 km/h (30 mph) or less, respectively.

All Category Y and Category T ATVs must be equipped with a means of limiting the maximum speed obtainable by the vehicle, which is either adjustable or removable or both, but has means to prevent adjustment or removal without the use of tools or specialized devices. The proposed revisions specify that all Category Y and Category T ATVs shall be delivered from the manufacturer with the speed-limiting device adjusted to the minimum limits for maximum speed (*i.e.*, 10 mph for Category Y-6, 15 mph for Categories Y-10 and Y-12, and 20 mph for Category T).

The intention of the proposed revised provisions regarding maximum unrestricted speed capability and maximum limited speed capabilities for all Category Y and Category T ATVs is to provide a means by which the supervising adult can limit the ATV's maximum speed capability according to the skill and experience of the young rider. By further specifying that Category Y and Category T ATVs be delivered with the speed limiter adjusted to provide the specified low maximum speeds, it is expected that higher speeds will not be used unless the supervising adult has determined that the young rider has the skill and experience to operate the ATV at those higher speeds.

The proposal also introduces maximum unrestricted speed capability specifications for the newly proposed Category Y-10 and Category T ATVs. The proposed maximum speeds for each category were based on human factors studies and available information on children's interaction with similar products. A more complete discussion of this issue is contained in Section V.C.3.e, infra at 39-40.

This revision also reflects an effort to improve the matching of the categories to the market because CPSC data indicates that younger riders are more at risk on larger, adult-size ATVs. The new categories focus on speeds that are more appropriate for the age categories and

are intended to appeal to the younger riders and their families in place of larger, adult-size ATVs with no limit on maximum speed.

10. Certification Label

Section 12 of the proposed revised standard specifies that all ATVs shall be equipped with a certification label placed in a location that allows viewing without removing any part of the ATV. The label is to include the following statement: "[Manufacturer's name] certifies that this ATV complies with the American National Standard for four-wheel all-terrain vehicles, ANSI/SVIA-1-200X Standard." This requirement provides consumers and others with a visual means of verifying that an ATV complies with the standard.

11. Status of the ANSI Canvass

The deadline for submitting comments on the canvass draft of the proposed revised ANSI/SVIA standard was November 13, 2006. A total of 10 comments were received and analyzed by the SVIA TAP, and written responses have been sent to the commenters. Substantive changes are being made in the proposed revised standard by the SVIA TAP pursuant to the comments received. A revised draft of the proposed standard with copies of the comments and responses and an explanation of the changes will be re-circulated to the canvass list for a second round of review and comment.

APPENDIX C

STATUTORY REQUIREMENTS

A. Statutory Authority For CPSC Rulemaking

1. CPSA

Section 7 of the CPSA permits the Commission to promulgate consumer product safety standards which include two types of requirements: (1) performance requirements; and/or (2) requirements that the product be marked with or accompanied by clear and adequate warnings or instructions, or requirements respecting the form of warnings or instructions. 15 U.S.C. § 2056(a). Any such requirement must be "reasonably necessary to prevent or reduce an unreasonable risk of injury associated" with the product. Id.

Section 9 of the CPSA provides that in order to issue either a standard under Section 7 or a ban under Section 8, the Commission must follow specified procedures and make certain findings. Id. § 2058. More specifically, in order to promulgate such a "consumer product safety rule," CPSC must do the following:

- Consider relevant available product data, including the results of research, development and testing (Id. § 2058(e));
- Make findings with respect to:
    - — the degree and nature of the risk of injury the rule is designed to reduce or eliminate;
    - — the approximate number of products or classes of product subject to the rule;
    - — the need of the public for the products subject to the rule and the probable effect of the rule on the utility, cost, or availability of products to meet that need; and
    - — any means of achieving the objective of the rule while minimizing adverse effects on competition or disruption or dislocation of manufacturing or other commercial practices consistent with the public health and safety. Id. § 2058(f)(1).

- Provide a final regulatory analysis that includes:

  — a description of the potential benefits and potential costs of the rule, including costs and benefits that cannot be quantified in monetary terms, and the identification of those likely to receive the benefits and bear the costs;

  — a description of any alternatives to the final rule which were considered by the Commission together with a summary description of their potential benefits and costs and a brief explanation of why those alternatives were not chosen; and

  — a summary of significant issues raised by the comments submitted during the public comment period in response to the preliminary regulatory analysis, and the Commission's assessment of those issues. Id. § 2058(f)(2).

- Include in the rule, findings that:

  — the rule (including its effective date) is reasonably necessary to eliminate or reduce the risk of injury;

  — promulgation of the rule is in the public interest;

  — in the case of a banning rule, no feasible standard under the act would adequately protect the public from the unreasonable risk of injury associated with the product;

  — with respect to a risk of injury addressed by a voluntary consumer product safety standard that persons who would be subject to the rule have adopted and implemented, either compliance with the voluntary consumer product safety standard is not likely to result in the elimination or adequate reduction of the risk of injury, or it is unlikely that there will be substantial compliance with the voluntary consumer product safety standard;

  — the benefits of the rule bear a reasonable relationship to its costs; and

  — the rule imposes the least burdensome requirement which prevents or adequately reduces the risk of injury that the rule addresses. Id. § 2058(f)(3).

Section 11 of the CPSA provides that for the rule to be upheld on judicial review, all of these required findings must be supported by "substantial evidence on the record taken as a whole." Id. § 2060(c).

Section 27(e) of the CPSA authorizes the Commission to require by rule any manufacturer of consumer products:

- to provide to the Commission such performance and technical data related to performance and safety as may be required to carry out the purposes of the act; and
- to give such notification of such performance and technical data at the time of original purchase to prospective purchasers and to the first purchaser of the product for purposes other than resale, as it determines necessary to carry out the purposes of the act. Id. § 2076(e).

2. FHSA

The Commission is proposing to promulgate those provisions of the NPR that address ATVs intended for use by children under the FHSA. Under Section 30(d) of the CPSA, a risk of injury that can eliminated or reduced to a sufficient extent by action under the FHSA may be regulated under the CPSA only if the Commission finds it is in the public interest to regulate that risk under the CPSA. Id. § 2079(d).

The FHSA authorizes the Commission to promulgate rules that address mechanical hazards associated with articles intended for use by children. Section 3(e) of the FHSA permits the Commission to promulgate a rule declaring that an article presents a mechanical hazard. Id. § 1262(e). An article presents a "mechnical hazard" if, in normal use or when subjected to reasonably foreseeable abuse, its design or manufacture presents an unreasonable risk of personal injury. Id. § 1261(s). Section 2(f)(1)(D) of the FHSA classifies any article determined by rule to present a mechanical hazard as a "hazardous substance." Id. § 1261(f)(1)(D). Pursuant to Section 2(q)(1)(A) of the FHSA, such an article is banned if it is intended for use by children. Id. § 1261(q)(1)(A).

To promulgate a rule under Section 3(e) of the FHSA, the Commission must:

- Prepare and publish with the final rule, a final regulatory analysis that includes:

  — a description of the potential benefits and potential costs of the rule, including costs and benefits that cannot be quantified in monetary terms, and the identification of those likely to receive the benefits and bear the costs;

  — a description of any alternatives to the final rule which were considered by the Commission together with a summary description of their potential benefits and costs and a brief explanation of why those alternatives were not chosen; and

  — a summary of significant issues raised by the comments submitted during the public comment period in response to the preliminary regulatory analysis, and the Commission's assessment of those issues. Id. § 1262(i)(1).

- Include in the rule, findings that

  — with respect to a risk of injury addressed by a voluntary standard that persons who would be subject to the rule have adopted and implemented, either compliance with the voluntary standard is not likely to result in the elimination or adequate reduction of the risk of injury, or it is unlikely that there will be substantial compliance with the voluntary standard;

  — the benefits of the rule bear a reasonable relationship to its costs; and

  — the rule imposes the least burdensome requirement which prevents or adequately reduces the risk of injury that the rule addresses. Id. § 1262(i)(2).

B. Statutory Authority For Banning Adult Three-Wheel ATVs

Pursuant to Sections 8 and 9 of the CPSA, 15 U.S.C. §§ 2057, 2058, CPSC is proposing to declare that any adult-size three-wheel ATV manufactured or imported after the regulation becomes effective is a banned hazardous product, the sale of which is prohibited in the United States. See 16 C.F.R. Part 1307 (proposed), 71 Fed. Reg. at 45,930.

Section 8 authorizes CPSC to issue such a ban regulation, in accordance with the

procedures and required findings in Section 9 of the Act, provided the Commission finds that such ATVs are being, or will be, distributed in commerce; that such ATVs present an unreasonable risk of injury; and that no feasible consumer product safety standard under the Act would adequately protect the public from the unreasonable risk of injury. 15 U.S.C. § 2057. Section 9 also specifically requires that CPSC make findings that the rule is reasonably necessary to eliminate or reduce an unreasonable risk of injury associated with such products and, again, that no feasible consumer product safety standard under the act would adequately protect the public from this unreasonable risk of injury. Id. § 2058(f)(3)(A), (C). These required Section 9 findings must also be supported by substantial evidence on the record taken as a whole. Id. § 2060(c).

APPENDIX D

SAFETY ISSUES PRESENTED BY NEW ENTRANTS

There has been a growing volume of imports of ATVs into the United States from "new entrants" to the ATV market. In 2004, these imports were estimated to have reached 200,000 units, or over 20% of the U.S. ATV market. These imports are predominantly from manufacturers in China.

The ATV Companies have previously submitted comprehensive information about these "new entrants" to CPSC, including submissions on March 16, 2001, June 30, 2004 and September 2005. Most recently, the ATV Companies, through the SVIA, commissioned an independent study of four youth model ATVs being distributed for sale by several companies that are new to the U.S. market. The study was conducted by two former CPSC employees at the firm Marchica & Deppa. A copy of the study is attached as Appendix M.

The Marchica & Deppa study found that each of the four new entrant ATVs failed to comply with the existing ATV ANSI standard and presented significant safety problems, including inadequate braking and suspension systems; top speeds exceeding the maximum speed limits established for youth models; a lack of mechanisms to prevent starting of the vehicles while in gear; excessive tire pressure; and numerous other problems. Indeed, in three of the four cases, the Marchica & Deppa study concluded that these problems were so severe that they created a "substantial product hazard" under Section 15 of the CPSA, requiring immediate recall of the ATVs. And two of the units were so unsafe that Marchica & Deppa refused to allow its test operators even to ride them.

The Marchica & Deppa study further reported that these four new entrant ATVs had been targeted to the youth market and were readily available over the internet or at various retailers not traditionally associated with motorized recreational products. The vehicles were sold with

little or no safety information; no offer of training; and without any minimum age enforcement. None of the units had been properly prepared for delivery and, to the extent they contained functional speed limiting devices, the devices were not set to restrict vehicle speed. Three of the units were delivered to the home of one of the study authors and required significant assembly, including, in one case, rewiring of the electrical system.

As demonstrated in these submissions, many of the new entrant ATV imports do not appear to comply with key elements of the ANSI/SVIA standard. In addition, the ATV Companies are unaware of any new entrant manufacturer that has provided the CPSC with a voluntary Action Plan of any kind, let alone one that contains substantially the same safety initiatives, training and dealer monitoring programs, and ATV age-related sales restrictions implemented by the ATV Companies.

The refusal of these new entrants to implement ATV safety and training programs substantially similar to those specified in the current Action Plans stands in stark contrast to the ATV companies that have entered the U.S. ATV market since the Consent Decrees were adopted, such as Arctic Cat, Bombardier, Cannondale and most recently (2004) Deere & Company. The adoption of Action Plans by these four companies demonstrates that there is no market impediment or other justification for other new entrants not to adopt and implement substantially the same safety and training programs. Importers of these products are selling them on the internet or through non-dealer outlets such as lawn mower shops and automobile parts stores, with no apparent safety, training, or product support programs, and without undertaking any effort to assure that adult-size ATVs are not marketed or sold for use by children under 16. In short, there is no indication that new entrant ATV manufacturers are inclined voluntarily to comply with the ANSI/SVIA standard or to implement comparable Action Plans.

Because ATV-related accidents and injuries are reported in the aggregate, it is impossible to determine the number of such incidents involving new entrant ATVs. IDIs and incident reports involving new entrant ATVs were obtained from the Commission, pursuant to the Freedom of Information Act. (Copies of these reports were attached as Appendix B to the December 13, 2005 Joint Comments of the ATV Companies on the ATV ANPR (70 Fed. Reg. 60,031 (Oct. 14, 2005) and are incorporated herein by reference.) The reported incidents involve mechanical and performance problems indicative of non-compliance with the ANSI/SVIA standard, as well as reports of the kind of rider behavior and misuse that are warned-against and addressed in the training and safety programs offered by the ATV Companies. Similarly, as shown above, 3 of the 4 new entrant ATVs tested by Marchica & Deppa were found to create "substantial product hazards" under Section 15 of the CPSA.

APPENDIX E

December 15, 2006

To: The ATV Companies

From: Edward J. Heiden, Ph.D.

Re: Analysis of CPSC 2005 Annual ATV Report

The purpose of this memo is two-fold: (1) to provide an updated picture of trends in ATV-associated injuries, fatalities, and risk, based on data in CPSC's just-released 2005 Annual Report of ATV Deaths and Injuries; and (2) to comment on CPSC's analysis of these data contained in the Report.

Highlights of 2005 Annual Report

For each of the past several years, CPSC has published an annual report updating trends in ATV-related injuries, fatalities, and vehicle population drawn from: (1) the National Electronic Injury Surveillance System (NEISS), a national statistical hospital emergency room data base for ATV-related injuries and their profile characteristics; (2) state Death Certificate records and other sources of fatality data including, but not limited to, newsclips and consumer complaints, MECAP and police reports, NHTSA's Fatal Accident Reporting System records for on-road vehicle accidents, and CPSC's own in-depth investigations (IDIs); and (3) ATV vehicle population estimates based on life-cycle models and operability rate data developed by the CPSC in cooperation with the ATV Companies, based on periodic industry vehicle ownership and exposure surveys and annual ATV sales data furnished by the industry to update modeling estimates. The fatality data reported by the states is furnished to CPSC with a time lag ranging from a few months for some states to several years for others, depending on reporting deadlines in the individual states. These fatality reports in the year 2005 thus represent only a partial, incomplete record for that year, but also include additional reports of fatalities occurring in previous years that have been added to the database by late-reporting states. Reports for a given year are usually complete within approximately three years after a fatality occurred.

Highlights from the recently issued 2005 CPSC annual report are as follows:

Four-Wheel ATV Injury Risk

The 2005 estimate of annual four-wheel ATV-related NEISS injuries was 130,000, which is virtually identical to the 129,500 injury estimate reported for 2004. The slight year-to-year

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increase of 0.39 percent was, of course, not statistically significant. This virtually unchanged number of injuries for four-wheel ATVs occurred while the number of four-wheelers in use was rising by about 700,000 vehicles from 6.9 to 7.6 million units. This slight rise in total injuries in the context of a large increase in new vehicles in use resulted in an estimated decline of nine percent in per-vehicle ATV injury risk for the year – from 187.9 injuries per 10,000 four-wheel ATVs in 2004 to 171.5 per 10,000 in 2005.

This number of 187.9 injuries per 10,000 four-wheel ATVs in use compares to an injury risk of 184.7 per 10,000 in 1998, the year in which the overhauled NEISS sampling frame and methodology was first completely implemented and the year in which the ATV Consent Decrees expired. (See CPSC Report Table 6).

In fact, injury risk per 10,000 four-wheel ATVs has now declined for the past four consecutive years. As the estimated number of vehicles in use was rising from 4.9 million to 7.6 million, four-wheel ATV injury risk per 10,000 vehicles declined from 200.9 injuries per 10,000 four wheelers in use in 2001 to 171.5 in 2005. (See CPSC Report Table 6). This decline of 15 percent just barely falls short of representing a statistically significant decline in risk. More specifically, the confidence level associated with this four-year decline is 89 percent (1-p equals .8925), while the 90-percent confidence level is regarded by statisticians as an initial threshold for making statistically meaningful statements about trends in time-series data.

Injuries to Children Under 16

The CPSC Report also reflects a positive development involving children under 16. There were 40,400 ATV-related injuries to children under 16 in 2005, a 10-percent decrease over the 44,700 injuries recorded for 2004. This decrease was statistically significant at the 93-percent confidence level, which just falls short of the 95-percent level that CPSC adopts as its sole criterion for characterizing statistical significance. Moreover, the estimated share of all ATV injuries involving children under 16 has fallen over time to 30 percent in 2005, down from 33 percent in 2004 and 37 percent in 1998 (See CPSC Report Table 5).[1]

Four-Wheel ATV Fatality Risk

The CPSC Report confirms that although the total number of ATV-related fatalities has been rising over time, the picture of vehicle-adjusted fatality risk has been a relatively constant one for 1999 through 2004.[2] Four-wheel ATV fatality risk has stayed relatively constant at

[1] The CPSC annual report does not present estimates of trends in ATV risk per number of vehicles in use for children under 16.

[2] As the CPSC Report notes, 1999 was the first full year of reports under the fatality data collected under the Tenth Revision of the International Classification of Diseases, which allows for more complete identification of fatalities involving on-road vehicles).

between 1.0 and 1.2 fatalities per 10,000 vehicles in use for the most recent years (2000-2002) for which fatality reporting was reasonably complete at the time of this report as well as the preliminary estimates for 2003 and 2004, years for which death certificates data may still be augmented by late reports. It is worth noting that estimated fatality risk for each year from 2000 through 2004 was substantially below the level reported for 1999, the first year of implementation of the revised data collection methodology adopted by CPSC (In 1999 four-wheel fatality risk was at 1.4 deaths per 10,000 four-wheel ATVs, as shown in CPSC Report Table 4).

CPSC's Analysis of ATV Risk in the 2005 Annual Report

The most important conclusion that emerges from a careful reading of the CPSC ATV injury, fatality, and risk data report for 2005 is that there has been no real increase in ATV risk over time in the years after CPSC began employing a consistent measurement methodology – 1999 for fatalities, 1998 for injuries. Moreover, there is some evidence, though not as clear, that injury risk could be in the process of declining.

However, even though risk trend assessment and measurement are at the heart of the agency's mission, the story contained in CPSC's narrative interpretation of the data furnished in its 2005 Report is sparing in its discussion of changes in ATV injury risk. Instead, CPSC's primary analytic emphasis is on the fact that the number of injuries has been rising. In evaluating the meaning of rises in the absolute number of total ATV injuries in its report, CPSC has almost completely neglected the fact that this rise in injuries has occurred at the same time and hand in hand with a commensurate (and in some years even more than commensurate) rise in the ATV vehicle population.

The Report's emphasis on trends in ATV injury totals rather than on what these totals mean in terms of the likelihood or risk of being injured over time is inconsistent with CPSC's prior approaches in its studies of ATV safety. The focus of these past studies has always been to gain insight and understanding about injuries and their patterns by developing and applying exposure measures -- in this case, operability rate and vehicle population models developed by its own analysts -- to evaluate and judge the reasonableness of injury likelihood over time. CPSC, in its narrative discussion of the injury and fatality data materials that it has provided in its 2005 report, is virtually ignoring the fact that vehicles in use have been generally rising over time as fast as, or – more recently – faster than the total number of injuries. In so doing, the CPSC is falsely implying that, because of the rise in total injuries, ATVs have become more dangerous, and thus a more suitable candidate for regulation. In fact, as CPSC Report Table 6 indicates, the expanding ATV four-wheel vehicle population, which has averaged 13.8 percent annual growth between 1998 and 2005, more than fully "explains" what has been a 12.5 percent annual rise in total injuries over the same period, and demonstrates that ATVs are indeed not

becoming riskier in terms of any increased likelihood of injury arising from them, and may indeed be becoming less risky.

In addition to failing to discuss adequately the importance of a rising ATV vehicle population as a factor in explaining ATV injuries, fatalities, and risk, the Report displays several other examples, both large and small, of narrative bias that result in a misplaced, unbalanced emphasis on injury totals at the expense of other important observable risk-related trends. As we noted above, the Report indicates that there was no significant upward or downward trend in four-wheel ATV injury risk from 2001 to 2005. Omitted in this narrative are two very important facts: (a) injury risk per 10,000 ATVs indeed went down over the 2001-2005 period by approximately 15 percent from 200.9 to 171.5; and (b) the statistical confidence level associated with this declining risk trend fell just short of the 90-percent level recognized by many statisticians as worth noting in data analysis.

The CPSC Report narrative also minimizes the progress being made on injury risk faced by children under 16 in recent years. The narrative discussion of injuries to children under 16 does not acknowledge that there has been a substantial decrease over time in the proportion of ATV-related injuries involving this age group. Table 5 of the Report clearly shows that injuries to children have declined from 37 percent of all ATV-related injuries in 1998 to 30 percent in 2005. The Report's choice of a 2001-2005 analysis time frame rather than a longer one beginning in the year of the NEISS sampling frame changeover obscures the ability to observe this important downward trend.

The CPSC Report's also dismisses the 10 percent decline in children's injuries from 2004 to 2005 as "not statistically significant". However, this one-year decline is indeed statistically significant at the 90 percent confidence level – a level recognized as worth noting in statistical data analysis work – and just misses (at 93 percent) being significant at the 95 percent confidence level. On the other hand, the next sentence of the Report labels as "statistically significant" a confidence level for the trend from 2001-2005 in the total number of children's injuries that is only three percentage points higher (96 percent) than the one dismissed as "not significant". In this instance, whether intentional or not, it appears as if there has been a selective use of confidence limits to reward a finding that shows recent increases in total injuries to children, and downplay a finding that shows a more recent significant decline in children's injuries.

All in all, the CPSC Report contains a discussion of trends in injuries and fatalities that is carefully parsed to highlight the increases in total injuries and fatalities and minimize the importance of the recent trends in vehicle population-adjusted risk.

HEIDEN
ASSOCIATES

Comments on the CPSC ANPR on ATV Safety

by
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December 8, 2005

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I am the President of Heiden Associates, a product safety and economic consulting firm based in Washington, D.C. Heiden Associates specializes in the application of microeconomic and statistical analysis to business and public policy issues. One of our core areas of expertise is product safety and risk assessment.

During the past few years, Heiden Associates has conducted statistical research on a number of issues relating to the risks associated with the use of ATVs, particularly by children under 16. In 2001, Heiden Associates conducted an exposure survey to determine both the number of ATVs in use and the amount of time that consumers operate them. The exposure survey was sponsored by the major ATV manufacturers and conducted in close consultation with CPSC staff. The data from this survey and the companion CPSC staff study of ATV-related injuries provide the foundation for much of the discussion of ATV injury risk issues in the Commission briefing package.

Since the exposure study, my staff and I have developed analyses of ATV operability rates; risk comparisons with other products, activities, and vehicles; an assessment of the potential benefits from improved user compliance with safety recommendations; and some comparisons of state ATV fatality rates prior to and after enactment of improved state ATV safety legislation. Many of the key results have been presented in my testimony at the May 2003 CPSC field hearing in West Virginia, testimony in March at the CPSC, and in written comments submitted for the record at the conclusion of the spring hearing.

In these comments, I reiterate, and update where possible, the core conclusions of this previous research on ATV safety and risk, which are as follows:

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1. ATV injury and fatality risk has remained remarkably stable on a per-vehicle-in-use basis when risk comparisons are performed for the years (1998 through 2004 for injuries, 1999 through 2003 for fatalities) in which the risk estimates were produced from consistent sample frames and statistical methodologies. In particular, the data are clear that no significant change in injury risk has taken place since the ATV Consent Decrees expired in 1998.
2. In addition, recent trends in risk rates suggest that some progress is being made in reducing the rate of children's injuries and fatalities, relative to the number of ATVs in use.
3. Warned against behaviors, especially the failure to wear a helmet, continue to represent a significant injury and fatality risk factor;
4. The potential benefits of reducing non-compliance with safety recommendations are substantial, particularly with respect to reducing the numbers of fatalities and serious head injuries; and
5. State safety legislation regulating ATV use can potentially play an important role in reducing fatal injuries.

Overall ATV Injury Risk has been Stable since the Expiration of the Consent Decrees.

The 2001 CPSC staff ATV risk study appears to indicate that ATV injury risk rose on an exposure-adjusted basis between 1997 and 2001—the two years in which the most recent ATV

exposure and injury surveys were conducted. However, the NEISS system upon which the ATV injury estimates are based underwent a significant revision in 1997, and the full complement of hospitals in the new sample of reporting emergency rooms was not online until the fall of that year. During the interim period, the statistical weighting procedures used to develop national injury estimates were adjusted to account for delayed reporting from some participants, but the hospitals that came online late were not randomly distributed across geographic regions and hospital size classes. Consequently, there appears to be a consistent pattern across the entire spectrum of products under CPSC jurisdiction of larger percentage increases in estimated injuries from 1997 to 1998 than in any year since. For example, the NEISS injury estimates presented in all of the first nine CPSC hazard screening reports (including ones on power tools, outdoor activities, toys, team sports, appliances, camping equipment, consumer electronics, and housewares) show larger annual percentage increases in injuries from 1997 to 1998 than for the period since then. The injury estimates for a large majority of all specific NEISS product codes exhibit a similar pattern over this time period.

Accordingly, I believe that injury risk trends—both for ATVs and for other products—are best evaluated using estimates beginning in 1998, the first year that a full complement of NEISS hospitals in the new sample was available (and, coincidentally, the year the ATV Consent Decrees expired). With the 2004 injury estimates now available, it is clear that the injury risk associated with the use of ATVs has been essentially stable for the past six years. Measured on a per-vehicle basis (the best metric given the data available), ATV risk has fluctuated in the range between 185 and 201 injuries per 10,000 four-wheel vehicles in use during this time period and

has actually decreased slightly during each of the past three years. In fact, the 2004 rate of 188 injuries per 10,000 four-wheel ATVs in use is lower than for any year since 1998. *See* Exhibit 1.

ATV-Related Injury Risk for Children Under 16 has Declined Steadily since the Expiration of the Consent Decrees.

The injury risk numbers in recent years show improvement for children under 16, relative to the general ATV-riding population as a whole. This improvement is most apparent when risk is measured in terms of the ATV vehicle population, which is in my view the most appropriate measure to test for the effectiveness of efforts to restrict and regulate use of adult-sized ATVs by children under 16. Using this metric, in 2004 there were an estimated 60 ATV-related injuries to children under 16 per 10,000 vehicles in use. This represents a small decrease from the level of injury risk for children under 16 in 1998 (67 per 10,000 vehicles in use), when the Consent Decrees expired.

It is often suggested that injury risk is ideally measured on a usage-adjusted basis such as that measured by full-scale exposure surveys, rather than on a per-vehicle basis, and I would agree with that proposition in many contexts. However, the success or failure of current efforts to restrict riding of adult-sized ATVs by children under 16 can be best evaluated by examining on a per-vehicle basis the contribution that each ATV in use makes to the current level of ATV-related injuries sustained by children under 16. Specifically, if more ATV dealers, parents, and under-16 riders are complying with the ATV age and size recommendations, increased compliance will be reflected in a reduction in an injury rate measured on a per-vehicle basis,

irrespective of whether the explanation is that a lower percentage of adult-sized ATVs are being ridden by children under 16; that children under 16 are riding less frequently on adult-sized ATVs; or that there has been a secular decline in the injury risk associated with children riding on adult-sized ATVs. However, to the extent that improved compliance with the age recommendations is attributable to either of the first two of these three explanations, it will not show up in a reduced injury rate if it is measured by hours of use or number of riders for the remaining participants who ignore the ATV age guidelines and whose risk cannot be expected to fall as a result of increased compliance by others.

ATV-Related Fatality Risk has Declined or Remained Stable since 1999.

The CPSC staff analyses of fatalities highlight that there was a significant change in methodology for estimating ATV-related fatalities beginning in 1999. For the same reasons I previously outlined for assessing injury risk trends, it is only appropriate to examine fatality rates using estimates developed using the current statistical methodology. We have less information available on this trend, however, because the change in methodology took place one year later and because there is a substantially longer time lag before the database of incident reports becomes complete enough to develop a reliable annual estimate of ATV fatalities.

However, it appears that there are now sufficient data available for development of adequately reliable fatality estimates for the five-year period from 1999 through 2003. As Exhibit 1 shows, overall ATV fatality risk appears to have been declined somewhat since 2000, and particularly since 1999. If the current CPSC annual estimates for fatalities do not change

significantly in future reports, there were about 1.4 ATV-related fatalities per 10,000 four-wheel vehicles in use during 1999, declining to 1.0-1.1 fatalities per 10,000 vehicles in use during the three most recent years for which adequate data are available.

Fatality Risk for Children Under 16 has also Declined or Remained Stable since 1999.

In addition, we have examined trends in per-vehicle fatality risk for children under 16 since the Consent Decree expired. As Exhibit 1 shows, the estimated fatality rate declined by about 10 percent on a per-vehicle basis from 1999 to 2003 for children under 16.

It should be noted that assessing the per-vehicle trend in fatality risk for children under 16 has one additional complication—because of confidentiality restrictions on the publicly available database, it is not possible to determine the percentage of *estimated* fatalities sustained by children under 16, only the share of those fatalities that are actually reported to CPSC. However, the ratio of estimated fatalities to reported fatalities has declined significantly since the new methodology was implemented in 1999, and it is reasonable, in my view, to assume that ATV-related fatalities involving children are at least as likely to be reported or known to the CPSC as those involving adults.

The Great Majority of Accidents Continue to Involve Warned Against Behavior.

While ATV risk is clearly not increasing in recent years, there is still a great common interest in reducing injury and fatality rates from their current levels. The foundation of that effort must be a clear understanding of all of the factors that contribute to ATV accidents and

specifically, of the continuing significance of user non-compliance with ATV safety instructions and recommendations. Based on our review of hundreds of CPSC IDI reports on 1997-2002 ATV fatalities, we determined that nearly 92 percent of all ATV-related fatalities to riders regardless of age involved at least one type of warned against behavior, defined as: failure to wear a helmet, riding on a public road, drinking alcohol, passenger carrying, excessive speed, or using drugs. *See* Exhibit 2. Two or more warned against behaviors were reported in more than half of the fatalities reviewed. The most common of these behaviors was failure to wear a helmet (75 percent) followed by driving on public roads (40 percent). *See* Exhibit 3.

The CPSC briefing package contained an additional analysis limited to fatalities involving children under 16. For example, CPSC found that 93 percent of fatalities involving children under 16 occurred on ATVs with adult-sized engines, 72 percent involved children not wearing helmets (close to the percentage that we found for all riders), 45 percent involved multiple riders (compared with 28 percent in our analysis), and 25 percent occurred on paved roads.

These results help to provide a risk-factor roadmap as to where future injury and fatality reduction efforts might best be focused.

There are Large Potential Risk Reduction Benefits from Helmet Use Safety Initiatives

Both the 1998 and 2005 CPSC briefing packages have highlighted the extent to which ATV-related fatalities involve one or more warned-against user behaviors, including lack of helmet use, driving on public roads, carrying passengers, and driving after using alcohol or

drugs. However, these briefing packages have not contained any quantitative analysis that indicates the extent to which modifying these behaviors would contribute to reduced levels of fatal and non-fatal injuries. To fill in this gap, earlier this year I examined ATV helmet use patterns in the CPSC fatality and injury databases to estimate the potential benefits of reduced rates of warned-against behaviors (in terms of reduced numbers of fatal and non-fatal injuries) and determine the extent to which improvements in state ATV safety legislation could be expected to achieve these reductions. Helmet use was selected in part because the benefits of use are more specific (reduced head-related fatalities and injuries) and in part because there are a number of studies on the safety impact of helmet use both for ATVs and for other types of vehicles.

Nearly half of all ATV-related fatalities resulted from fatal head injuries sustained by riders who were not wearing helmets, according to the most recent CPSC fatality database. Non-fatal head injuries sustained by riders without helmets accounted for nearly 20 percent of all non-fatal injuries that resulted in hospitalization. The extent to which these head injuries can be reduced depends on two factors—the effectiveness of helmets in reducing fatal head injuries and the ability of state safety laws to result in modified user behavior with respect to wearing helmets.

CPSC Economist Greg Rodgers has previously examined the potential benefits of helmet use for ATV riders. In a 1990 article, Rodgers uses data from the 1989 exposure and injury studies and a then-current version of the fatality database to estimate logistic regression models

for fatal and non-fatal head injuries.[1] As an initial step in his analysis, Rodgers calculated the probability that an injured rider would sustain a fatal injury, and thence found that helmet use is associated with a 42 percent reduction in fatality risk from accidents that involve an injury. Rodgers also found in his 1990 study that helmet use is associated with a 64 percent reduction in the risk that a non-fatal injury will involve the head in his 1990 study.

Research on the relationship between state safety laws and seat belt use—a risk-reducing behavior comparable to helmet use for passenger vehicles—indicates that as much as 40 percent of user non-compliance with safety instructions can be eliminated through stronger and more consistently enforced state safety requirements.[2] If consistent state adoption and enforcement of ATV legislation requiring helmet use can achieve this level of reduction in non-compliance, the results would be substantial reductions in the numbers of fatal and non-fatal head injuries sustained by ATV riders—50 fatalities, more than 600 hospitalized injuries, and over 2,200 other ER-treated injuries—annually. *See* Exhibit 4.

State Safety Legislation Can Have a Significant Impact on ATV Injuries Involving Children

I have also examined the impact that actual state legislation, when in place and enforced, can have on the numbers of ATV-related injuries involving child (under 16) riders. Based on my

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1 Rodgers, Gregory B., "The Effectiveness of Helmets in Reducing All-Terrain Vehicle Injuries and Deaths," *Accid. Anal. & Prev.*, 1990, Vol. 22, No. 1, pp. 47-58.

2 "Safety Belt Use in 2003—Use Rates in the States and Territories," National Center for Statistics and Analysis, National Highway Traffic Safety Administration, DOT HS 809 713, March 2004.

analysis, it appears that state legislation can make a meaningful difference in reducing ATV injuries and fatalities.

In a previous analysis, I examined fatality rates in three states, Kentucky, New Jersey, and Texas that enacted state legislation to regulate the use of ATVs by children under the age of 16. Kentucky's law prohibits the operation of an ATV with an engine size greater than 90cc by a child under the age of 16. Ky. Rev. Stat. Ann. § 189.15(5)(a) (2002). New Jersey prohibits operation of an ATV on public lands by a child under the age of 14 and operation of an ATV over 90cc on public lands by a person under 16. N.J. Stat. Ann. § 39:3C-16(a), (b) (2002). The Texas law requires adult supervision of all ATV operators under the age of 14.

Using the most recent data now available, the percent of fatalities in Kentucky sustained by riders under 12 has declined from 26 percent pre-law to 7 percent after the law was enacted. *See* Exhibit 5. The percent of fatalities for riders under 16 declined from 55 percent pre-law to 19 percent after the law. Both results are statistically significant at the 95 percent confidence level. In New Jersey, the fraction of fatalities in the state involving riders under 14 declined from 19 percent to 4 percent. The decrease in fatalities involving riders under 16—from 31 percent to 12 percent—was statistically significant at the 95 percent confidence level. In Texas, the percent of fatalities to riders under 14 declined from 41 percent pre-law to 22 percent after the law (the previous Texas analysis cannot be updated because of new privacy restrictions on case records). This result in Texas is also statistically significant at the 95 percent confidence level.

Although the extent to which the state laws (as opposed to other factors) accounted for these decreases cannot be quantified with precision, these data suggest that such state laws can have a meaningful effect in reducing ATV-related fatalities and injuries involving children.

These same positive effects have been observed with other state laws regulating the use of motorized vehicles by children. For example, in 1996, Florida enacted a law prohibiting the use of personal watercraft by children under 12. Fla. Stat. Ann. § 327.395. The percentage of personal watercraft-related accidents involving children in Florida declined over 50 percent after enactment of the statute, from 24 in 1996 to the low teens (13 to 15) in 1997 through 2000, even while the number of personal watercraft in use continued to increase each year.[3] These data again suggest that effective enforcement of state age restrictions on product usage can significantly reduce the number of injuries and fatalities involving children.

[3] Personal watercraft-related accidents are reported to and compiled by the Florida State Boating Law Administrator. Although Florida and some other states compile data on personal watercraft-related accidents, no comparable state-level data is compiled for ATV-related accidents. The NEISS database used by CPSC compiles accident data on a national basis, which unfortunately does not permit a similar analysis of ATV-accident reductions in states that have enacted ATV age restriction legislation.

Exhibit 1

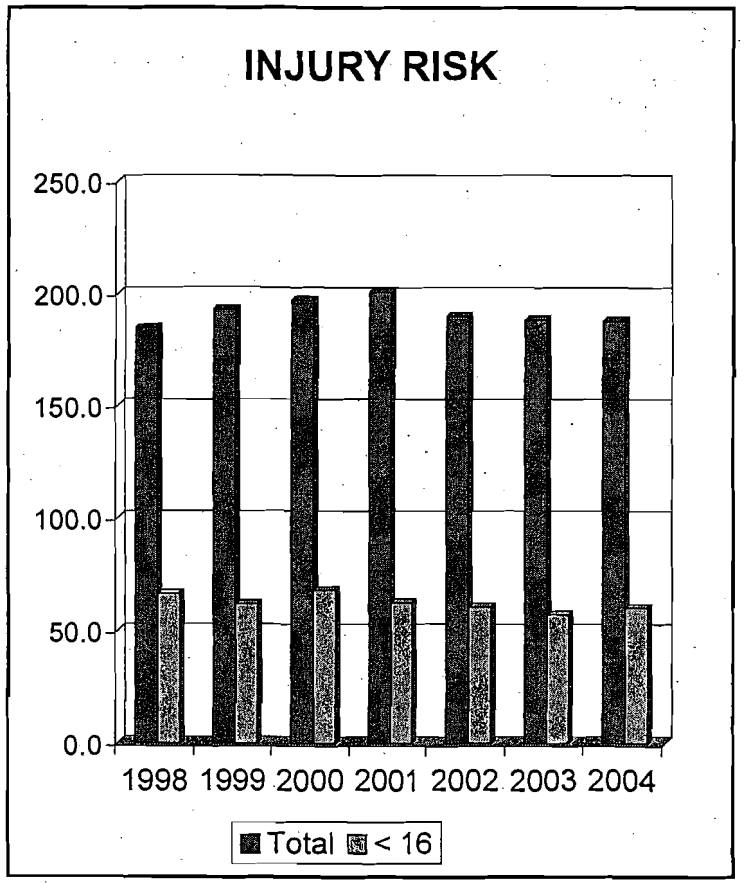
4-Wheel ATV Injury & Fatality Risk per Vehicle

	Injuries per 10,000 ATVs		Fatalities per 10,000 ATVs	
Year	Total	< 16	Total	< 16
2004	187.9	60.4	NA	NA
2003	188.4	57.0	1.1	0.28
2002	190.0	60.7	1.0	0.26
2001	200.9	62.6	1.1	0.29
2000	197.2	68.0	1.2	0.34
1999	193.0	61.9	1.4	0.32
1998	184.7	66.6	*	*

*Comparable estimates not available. Fatalities in 1998 were coded under a different classification.

Source: "2004 Annual Report of ATV Deaths and Injuries", CPSC, September 2005.

EXHIBIT 1
ATV INJURY AND FATALITY RISK PER 10,000 VEHICLES



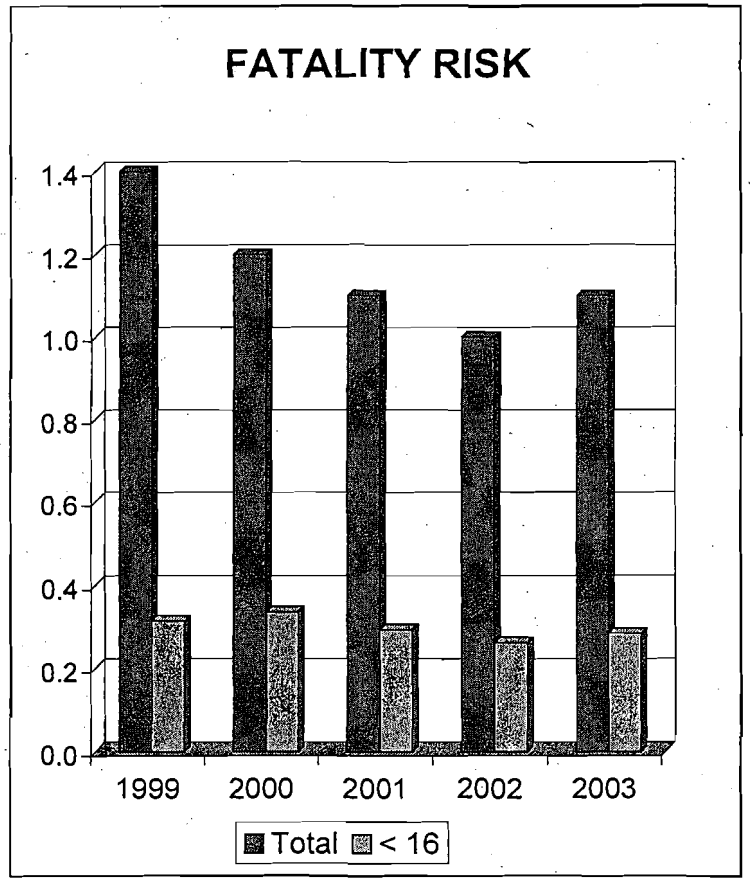


EXHIBIT 2
NUMBER OF FACTORS INVOLVED IN 1997-2002 ATV FATALITIES

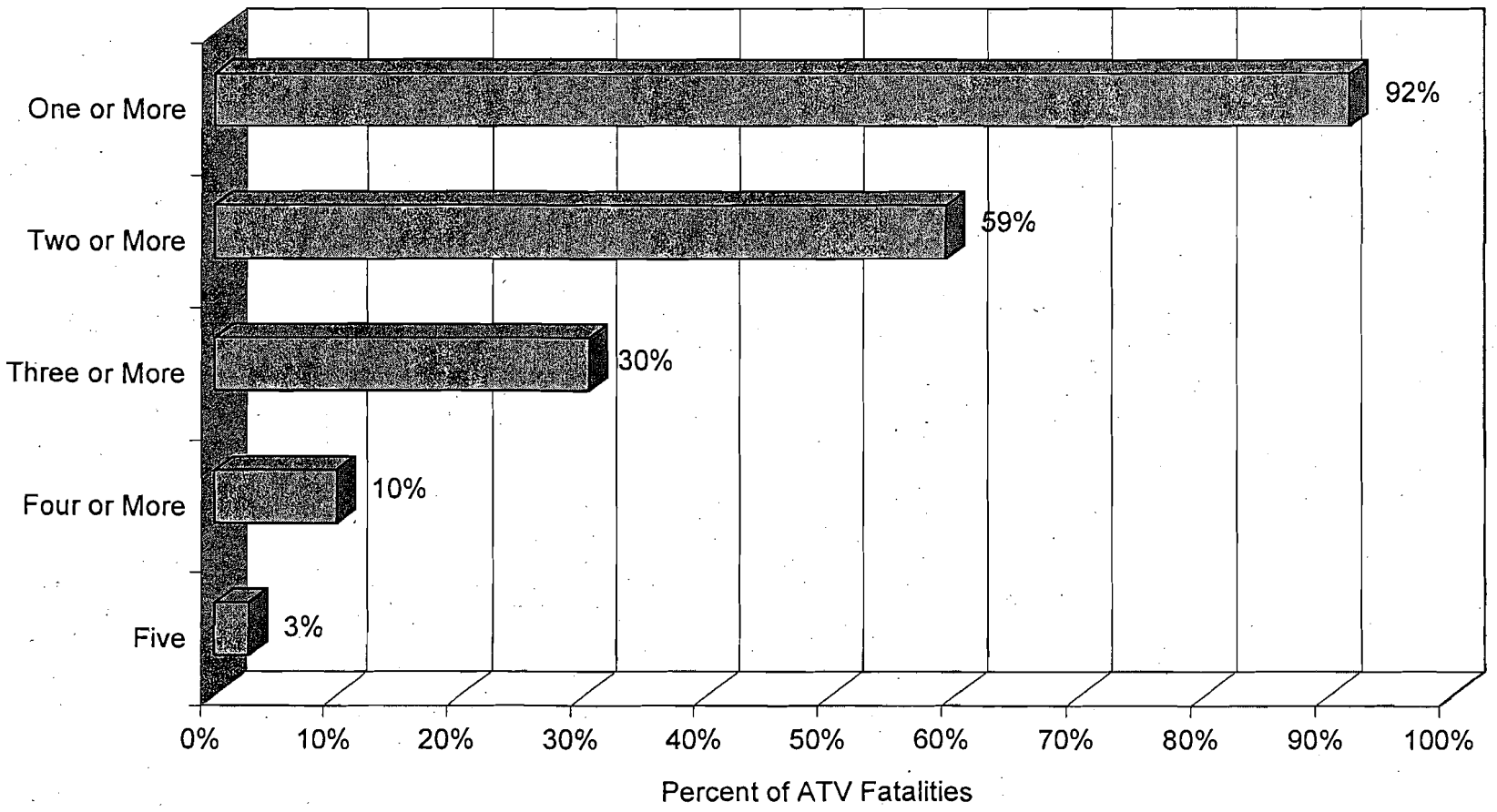


EXHIBIT 3
FACTORS INVOLVED IN 1997-2002 ATV FATALITIES

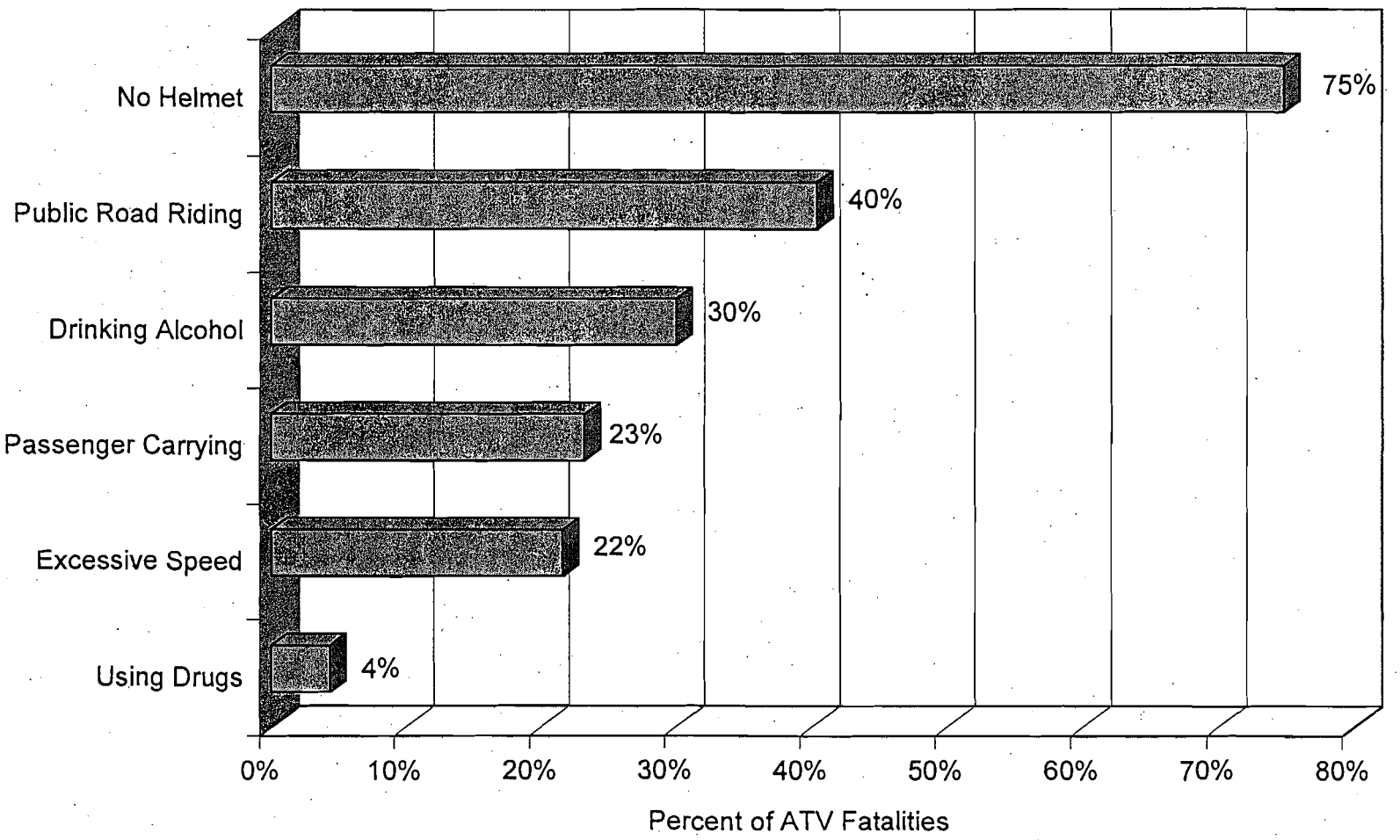
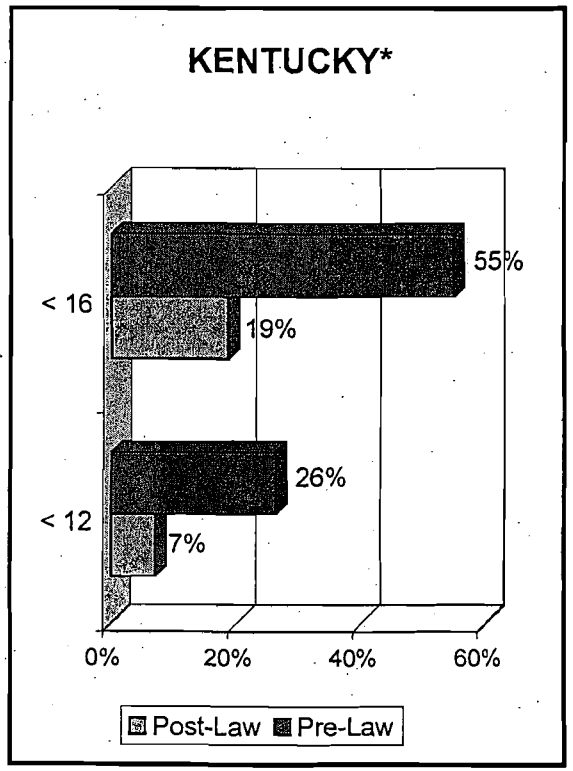


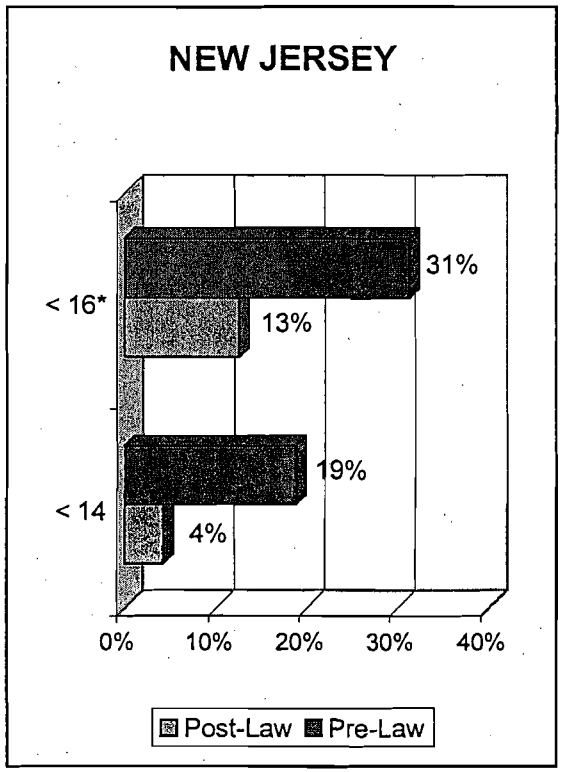
Exhibit 4
Potential Safety Benefits from Increased ATV Helmet Use
(Annual Reductions at 2001 Fatality/Injury Levels)

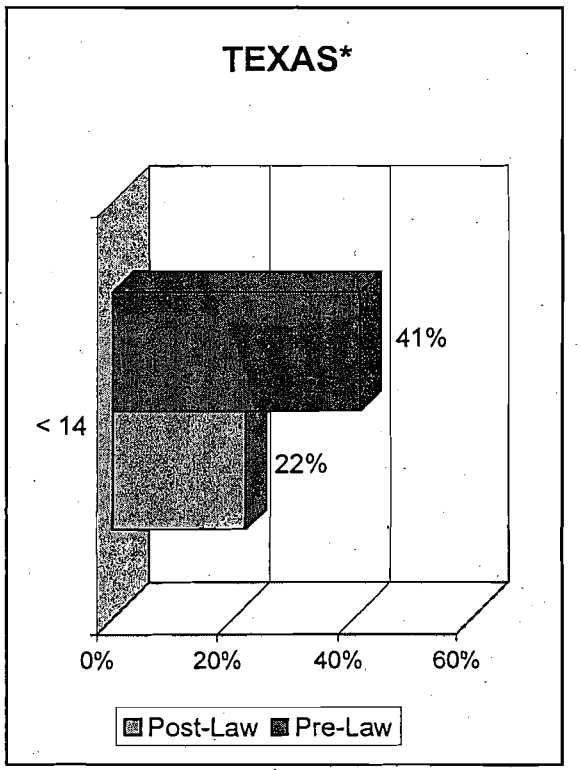
	Fatal Injuries	Non-fatal Injuries		
		Hospitalized	Other	Combined
Total Injuries in 2001	**609**	**13,500**	**96,600**	**110,100**
% Head Injuries*	56%	23%	11%	12%
Head-Related Injuries	338	3,060	10,340	13,400
% Helmet Worn	13%	17%	16%	17%
Head-Related Injuries				
w/ Helmet Use	42	523	1,706	2,229
w/o Helmet Use	296	2,537	8,634	11,171
% of Injuries Potentially Averted				
w/ Helmet Use	42%	64%	64%	64%
Number of Potentially Avertable Head Injuries	**124**	**1,624**	**5,526**	**7,150**
% Reduction in Non-Compliance from Upgraded Safety Laws	40%	40%	40%	40%
Projected Reduction in Injuries from Upgraded Safety Laws	**50**	**650**	**2,210**	**2,860**

* Head injuries coded as bodypart 75; face, eye, and mouth injuries are not included in these totals.

EXHIBIT 5
PRE- AND POST-LAW PERCENTAGES OF ATV FATALITIES TO CHILDREN







*Significant at 95% confidence level.

APPENDIX G

Stenographic Transcript of

Subcommittee on Consumer Affairs, Product Safety, and Insurance

COMMITTEE ON
COMMERCE, SCIENCE AND TRANSPORTATION

UNITED STATES SENATE

HEARING ON COMPLIANT WITH ALL-TERRAIN VEHICLE (ATV) STANDARDS

June 6, 2006

Washington, D.C.

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STATEMENT OF ELIZABETH LELAND, PROJECT MANAGER, ATV SAFETY REVIEW TEAM, CONSUMER PRODUCT SAFETY COMMISSION, BETHESDA, MARYLAND

Ms. Leland: Good morning, and thank you for this opportunity to speak today on the work of the U.S. Consumer Products Safety Commission in addressing safety issues related to all-terrain vehicles, or ATVs. My name is Elizabeth Leland, and I am the project manager for the ATV Safety Review Team.

The Consumer Products Safety Commission, or CPSC, is a small bipartisan agency charged with protecting the public from unreasonable risks of serious injury or death from more than 15,000 types of consumer products. ATV safety has been a subject of ongoing concern and activity at CPSC. Most recently, CPSC staff presented to the commissioners a briefing paper outlining a number of recommendations to address the risk of injury and death associated with this product. I ask the chairman's permission to submit the staff's recommendations to the committee for the record.

Senator Allen: Without objection, so ordered.

[The information previously referred to follows:]

[SUBCOMMITTEE INSERT]

Ms. Leland: As early as 1985, the Commission stated its safety concerns regarding ATVs in an advanced notice of proposed rulemaking. And in 1987, CPSC filed a lawsuit against the major ATV distributors. That lawsuit was settled by consent decrees in which the distributors agreed to take a number of actions to increase ATV safety. When those consent decrees expired, in 1998, the Commission

Since that time, much has changed with regard to ATVs. Sales have increased dramatically. U.S. retail sales of ATVs by major distributors have increased from an estimated 293,000 sold in 1995 to an estimated 921,000 sold in 2005. We estimate that since 1997 the number of ATV drivers has increased by 36 percent, from 12 million to over 16 million operators.

Looking at this explosive growth, it is not surprising that we are also seeing increases in deaths and injuries reported from ATV use. Based on studies conducted in 1997 and 2001, the estimated number of ATV-related injuries treated in emergency rooms rose from 53,000 to 110,000. Additionally, the number of imports from new entrants to the ATV market has increased markedly in recent years. A recent trade report estimated that over 100 Chinese manufacturers export ATVs worldwide.

These new imports are generally, and significantly, less expensive, and, unlike the major distributors that have traditionally marketed ATVs through established dealers, many of these new entrants market their products through U.S. importer wholesalers or offer ATVs for sale directly to consumers. Hundreds of Web sites offer these ATVs for sale.

In 2003, the Commission and CPSC Chairman Hal included one in New Mexico covering six western States, one in West Virginia, with representation from seven States, and one in Alaska, to hear directly from those who have personal and professional knowledge of ATVs. Subsequently, Chairman Stratton directed the staff to initiate a comprehensive review of all ATV safety actions.

Based on its evaluation of regulatory alternatives and public comments, the CPSC staff briefing paper presented to the commissioners last week recommends issuing a notice of proposed rulemaking that would establish mandatory requirements including that adult, youth, and tandem ATVs meet specific mechanical performance requirements; that specific safety warnings be provided to the purchaser of any ATV; that a disclosure statement warning against the use of adult ATVs by children, and describing the possible

consequences of children riding adult ATVs, be provided to, and signed by, purchasers of all adult ATVs at the time of purchase; that a certificate offering free training be provided to all purchasers; and that 3-wheeled ATVs be banned.

In 2003, there were an estimated 740 deaths associated with ATVs. CPSC staff is recommending to the Commission that they approve the staff's draft forward in improving the safety of ATVs for the children and adults who ride them.

Thank you, again, for calling attention to this important safety issue. I look forward to answering your questions.

[The prepared statement of Ms. Leland follows:]

Senator Allen: Ms. Leland, thank you for your testimony and the work that you have done.

I understand that the -- this is a proposed draft rule. The -- you cannot, though, issue a final rule until it -- you determine -- the CPSC determines that the existing voluntary standard will not adequately reduce the risk of injury from ATVs, or that there will probably not be substantial compliance with a voluntary standard. Are the established ATV manufacturers that are members of what is called the Specialty Vehicle Industry of America, the SVIA -- are they complying with the current voluntary standard?

Ms. Leland: Yes. Our information is that they are complying with the voluntary standard.

Senator Allen: Now, that's for the SVIA members.

Ms. Leland: Yes, that's correct.

Senator Allen: Right. Now, are there any ATV manufacturers that are not complying with this voluntary standard?

Ms. Leland: Evidence available to us indicates that there are new entrants coming into the United States from overseas, primarily China and Taiwan. And our evidence shows that many of those are not meeting the requirements of the voluntary standard.

Senator Allen: How do you see getting them -- or

getting all -- regardless of whether they're manufactured in the U.S., Canada, Japan, Taiwan, China, wherever they may be manufactured -- how do you see getting them into compliance?

Ms. Leland: The staff believes that it is necessary to have a mandatory standard that would have requirements requiring those companies to meet not only other issues, such as labeling and training, items at the point of purchase.

Senator Allen: Have -- these ATVs coming in from China that are not in compliance, have they provided any action plans on safety, training, or these other just mechanical safety design standard compliance? In other words, are they doing anything? Are they offering, in any way, to come into compliance with what all the rest -- the SVIA manufacturers are complying with?

Ms. Leland: I am not aware that that is happening on a large scale. Our compliance office does try to keep track of what is coming into the country through Internet surveillance, through any means that we have, and we have tried to contact some of those. I do not know what the result of that is, and I would have to get back to you on that.

[INFORMATION]

Senator Allen: Right. But you have tried to -- you have the --

Ms. Leland: My understanding is that we do contact companies that are bringing these ATVs into the country.

Senator Allen: Well, then what can you do, as a practical matter? Even if you contact them, let's say or do not comply, for whatever reason -- what can --

Ms. Leland: That is --

Senator Allen: -- anybody actually do to have them comply with the standards that the rest of the industry agrees to --

Ms. Leland: That's precisely --

Senator Allen: -- and complies with?

Ms. Leland: -- why we are recommending the mandatory standard, the notice of proposed rulemaking be issued by the Commission, because we feel that that is the way that we will be able to enforce having uniform mechanical requirements for the vehicles, having uniform labeling practices, safety practices, training practices. So --

Senator Allen: So, in other words, if -- the way things stand right now, if a company refuses, neglects, in any way doesn't -- simply does not comply, you have no enforcement -- there's no enforcement mechanism,

whether it's through your agency or otherwise, for those companies to actually comply with our standards.

Ms. Leland: The -- our Office of Compliance would be better prepared to address that. My understanding is that it is difficult, with a voluntary standard, to really go after a company.

Senator Allen: Enforce it.

would be able to -- we would strengthen our enforcement mechanisms.

Senator Allen: And let me ask you one final question. Since most motor vehicle laws are primarily determined by the States, on everything from speed limits to helmet laws, seatbelt laws, and the like, as well as age, how does the CPSC work with the States in promoting and enforcing ATV safety? Does State enforcement of ATV safety traditionally differ from Federal enforcement?

Ms. Leland: We believe the States have a critical role to play, and one of the recommendations we are making is to develop -- to launch a dedicated Web site devoted to ATV safety, and that Web site will have resources -- a resource bank, if you will -- for State legislators to use in developing and enacting legislation.

Senator Allen: Do various States have different

laws on ATV --

Ms. Leland: Yes.

Senator Allen: -- use?

Ms. Leland: There is a wide variety across the country. Some States do not have laws. Some do. Some address helmets, some address age issues, some have different ages. So, there is -- there is not a great

Senator Allen: Well --

Ms. Leland: -- among the States.

Senator Allen: -- we do have 50 different States --

Ms. Leland: Right.

Senator Allen: -- and they all have --

Ms. Leland: That's right.

Senator Allen: -- legislatures, and they all can act.

Ms. Leland: That's right.

Senator Allen: Thank you.

What's happened to Senator Pryor? He went to vote? Okay. Well, I don't have any further question. Senator Pryor has gone to vote. He may have some questions of you, Ms. Leland.

What we might do is go to the second witnesses. Ms. Leland, if -- just to keep things somehow moving here, in the way that the Senate operates, if you could stand by, and then we can -- I can introduce the

witnesses, and may be that by the time I'm finished introducing the witnesses, Senator Pryor will be back, but if you just could stand in the batter's box --

Ms. Leland: Sure.

Senator Allen: -- and be ready for some further questions from Senator Pryor -- thank you, Ms. Leland.

Senator Allen: Can we -- thank you -- now, if we can have the men and women of the second panel please come forward, I'd like to introduce you all. If you wanted to sit in the order in which you'll be presented, it'll first be Mr. Buche, then Ms. Weintraub, Mr. Williams, Dr. Aitken, and then Ms. Halbert.

We'll now hear from our second panel.

First, Mr. Tim Buche is the president of the Specialty Vehicle Institute of America. Mr. Buche has flown in from California -- so, it's still early for you -- to testify in regard to ATVs -- the ATV industry's compliance with recognized standards, as well as to provide an overview of the current market for ATVs in the United States. We're pleased you've agreed to discuss safety matters directly affecting your industry, and we thank you for testifying.

Next, we'll hear from Ms. Rachael Weintraub, who is the director of product safety and senior counsel at

APPENDIX H

Response to ATV Labeling and Categorization Provisions in U.S. CPSC Notice of Proposed Rule Making

J. Paul Frantz, Ph.D., C.P.S.M., CPE
Stephen L. Young, Ph.D.
Timothy P. Rhoades, Ph.D., P.E., CPE
Raina J. Shah, M.S.E.
Julia K. Diebol, B.S.E.

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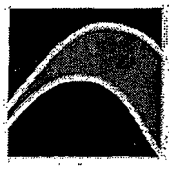

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Executive Summary

This report presents research and analysis conducted by Applied Safety and Ergonomics, Inc. (ASE) in response to ATV labeling and categorization provisions in the Consumer Product Safety Commission's (CPSC) Notice of Proposed Rulemaking (NPR) at 71 FR 45904-62 and related CPSC staff reports. ASE previously engaged in a number of activities related to concerns raised by the CPSC regarding the operation of adult-size ATVs by children under age 16, the potential benefits of introducing a transitional ATV category, and the revision of the ANSI/SVIA standard for ATVs. These prior activities are described in this report and form part of the basis for our comments and recommendations. In addition to previous work, this report describes original research conducted with parents and youths that is directly responsive to ATV labeling and categorization provisions of the NPR and questions that have been raised by the CPSC regarding factors that may be influential in children operating adult-size ATVs. This original research provides a basis for comments regarding provisions of NPR alone, as well as in comparison to provisions of the current draft ANSI/SVIA standard.

Collectively, our findings support the following general recommendations regarding ATV labeling and categorization. Regarding labeling,

- We recommend that the CPSC adopt the labels specified by ANSI/SVIA-1-200X, with the understanding that the ANSI/SVIA-1-200X draft will be modified as a result of comments received as part of the standard-development process.

Regarding the classification of ATV for use by children under the age of 16:

- We recommend that the CPSC adopt the categorization system specified by ANSI/SVIA-1-200X, which includes the Y-6, Y-10, and Transitional models and the speed limiting provisions for those categories.

Our research shows a strong preference, by both parents and youth, for the SVIA categorization system over the NPR system of categorizing ATVs. If a goal of the NPR is to find "the right mixture of size, weight, speed and other factors relative to the maximum size of the children who will be riding them, to make them attractive enough for youths (and their parents) to choose over their more dangerous adult counterparts" (Moore statement, July 12, 2006, p. 6), then our research indicates that the SVIA categorization system is superior to the proposed NPR categorization system. Collectively, our investigations indicate that the SVIA categorization system is preferred over the NPR system from the perspective of goodness of fit between ATVs and youth operators, consumer acceptance of non-adult sized ATVs for youth, enhanced credibility of ATV safety messages, increased availability of ATV safety information about youth operation, increased access to ATV training on age appropriate ATVs, and overall likelihood of children under 16 operating age-appropriate vehicles rather than adult size ATVs.

1. Introduction

Applied Safety and Ergonomics, Inc. (ASE) was asked by American Honda Motor Co., Inc., American Suzuki Motor Corporation, Arctic Cat Inc., Bombardier Recreational Products Inc., Deere & Company, Kawasaki Motors Corp., U.S.A., Polaris Industries Inc., and Yamaha Motor Corporation, U.S.A. to consider various provisions of the Consumer Product Safety Commission's (CPSC) Notice of Proposed Rulemaking (NPR) at 71 FR 45904-62 and related CPSC staff reports. More specifically, we have been asked to evaluate and provide comments on the NPR's labeling provisions and the proposed Youth ATV categorization system. In addition, we have been asked to consider aspects of the NPR in the context of the current draft American National Standard for Four Wheel All-Terrain Vehicles (ANSI/SVIA-1-200X, Draft as of September 7, 2006) and in relation to the concerns that have been raised regarding children under 16 years of age operating Adult ATVs.

By way of background, in April 1988, major ATV manufacturers entered into Consent Decrees that established uniform CPSC age restrictions related to ATV engine sizes. The CPSC system of categorization was and continues to be: (1) "Y-6" ATVs are intended for children 6 years and older and have engine displacements less than 70cc, (2) "Y-12" ATVs are intended for children 12 years and older and have a maximum displacement of 90cc, and (3) "adult-size" ATVs are intended for operators 16 years and older. The Consent Decrees expired in April 1998 and five manufacturers initiated "Action Plans" whereby they agreed to continue many of the provisions of the Consent Decree, including adhering to age-related guidelines and continuing to discourage children under 16 from operating adult-size ATVs. Arctic Cat Inc., Bombardier Recreation Products Inc., and Deere & Company have also entered the U.S. ATV market and initiated substantially similar Action Plans.

In response to concern about the number of children under 16 years of age operating "adult-size" ATVs as specified by current CPSC age restrictions, the CPSC published an Advance Notice of Proposed Rulemaking (ANPR) which sought information about the feasibility and marketability of a transitional ATV geared to larger children and/or small adults, and the effect such an ATV might have on safety. The CPSC suggested that there could be safety benefits associated with reducing the frequency with which children under 16 ride ATVs currently categorized as adult size. In addition, suggestions were made at CPSC-sponsored meetings that a better-fitting ATV for larger children under age 16 would be desirable. In particular, the 2005 ANPR suggested consideration of "a transitional ATV geared to larger children and/or small adults" (CPSC, 2005, p. 60036) that would be "appropriate for 14-year olds" (CPSC, 2005, p. 60033; Stratton memo, June 8, 2005). The goal of introducing a transitional ATV as an attractive alternative to the use of an "adult-size" ATV for children under 16 is also supported by the following statement by Commissioner Thomas Moore:

> "We must find the right mixture of size, weight, speed and other factors relative to the maximum size of the children who will be riding them, to make them attractive enough for youths (and their parents) to choose over their more

> dangerous adult counterparts" (Moore statement, July 12, 2006, p. 6).

The CPSC Notice of Proposed Rulemaking (NPR) did not introduce a transitional model for older children. Instead, it eliminates engine displacement limits, essentially breaks the existing Y-6 category into two categories (Junior and Preteen), and removes speed adjustments and creates a lower speed limit for ATVs recommended for children ages 6-8.

In contrast to the NPR, the current draft of ANSI/SVIA-1-200X introduces a new model intended to be attractive to 14 and 15 year olds as well as older children and many adults. This response to the CPSC NPR assesses further merits of the categorization systems proposed in the NPR versus ANSI/SVIA-1-200X.

2. Initial Response to CPSC Suggestion to Consider a Transitional Category of ATV

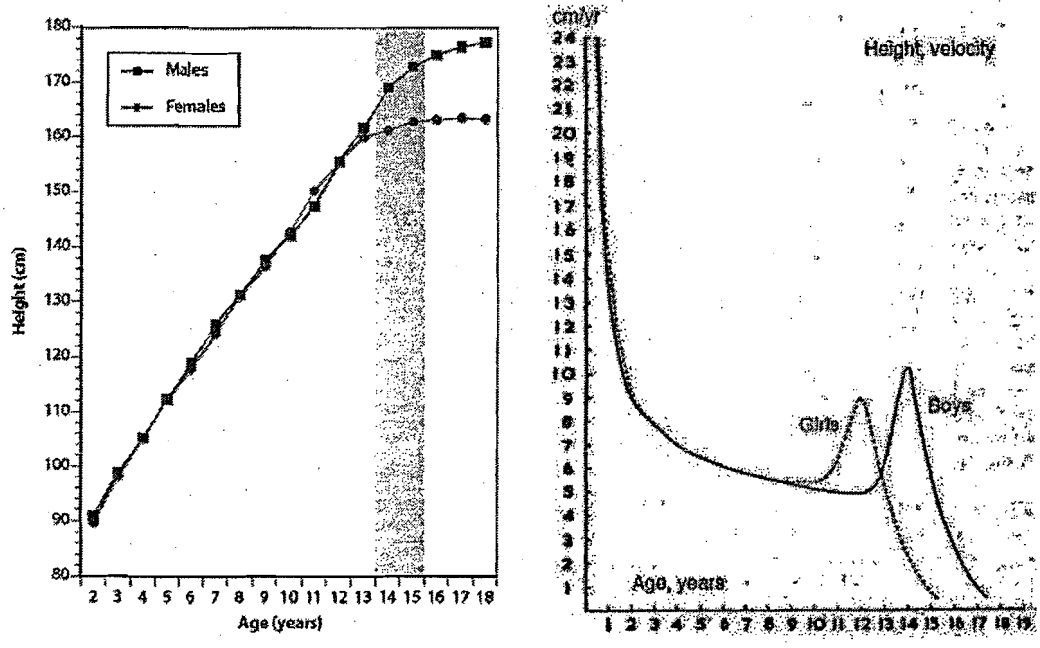
Concern has been raised by the CPSC about the number of children under 16 years of age operating "adult-size" ATVs as specified by current CPSC age restrictions. The CPSC has suggested that there could be safety benefits associated with reducing the frequency with which children under 16 ride ATVs currently categorized as adult size. In addition, suggestions have been made at CPSC-sponsored meetings that a better-fitting ATV for larger children under age 16 would be desirable. In its 2005 ANPR the CPSC suggested consideration of "a transitional ATV geared to larger children and/or small adults" (CPSC, 2005, p. 60036) that would be "appropriate for 14-year olds" (CPSC, 2005, p. 60033).

Investigations performed by Applied Safety and Ergonomics, Inc. in 2005 found the concept of a transitional ATV to be supported by groups experienced in promoting youth development and ATV safety (see ASE *Response to U.S. CPSC Suggestion to Consider a Transitional Category of ATV*, December 13, 2005). For example, the assessment of 4-H, a nationally recognized youth development organization that has developed Youth ATV training materials and programs, is that "the reality in the U.S. is that many youth under the age of 16 are already operating and will continue to operate adult-sized ATVs on a regular basis" (Halley Research, 2002, p. xv). This statement in a "Special 4-H Community ATV Safety Program Notice" indicates the conflicting situation that 4-H experiences as they: (1) focus on increasing the safe practice behaviors of youth who already operate ATVs (adult-size or not), (2) assist adults in making decisions about the readiness of their child to operate a particular ATV, and (3) support the position of the U.S. CPSC and the ATV industry regarding age of operators. Implicit in this 4-H Program Notice is an acknowledgment that many children under age 16 are capable of operating some adult-size ATVs and that it is worthwhile to make 4-H Community ATV Safety Programs available to them. Furthermore, we spoke with several 4-H Leaders at the national, state, and local level involved in the development, dissemination, and conduct of Youth ATV training materials and programs. These individuals had experience with youth in various parts of the country including Louisiana, Kentucky, Alaska and Utah and all of them recognized a variety of reasons for the tendency of larger 14 and 15 year olds to be on adult-size ATVs and they all supported further consideration of a new category of ATV.

Investigations performed by Applied Safety and Ergonomics, Inc. in 2005 also found that the CPSC's suggestion for the consideration of a transitional category is well founded from a human factors perspective. That is, from a variety of human performance and child development perspectives, many 14 and 15 year olds will have characteristics (e.g., strength, reach, stature, agility, balance, cognitive skills, etc.) that are either basically the same as many young adults or more similar to young adults than to younger children. Also, from a risk perception/appraisal perspective, again the literature indicates that many 14 and 15 year olds perform either basically the same as many older children/young adults or more similar to this group than to younger children.

Our 2005 analysis identified a number of factors that may contribute to the prevalence of 14 to 15 year olds riding adult-size ATVs:

- **The size of many 14 and 15 year olds will be more similar to that of older siblings and adults than to many children under age 14.** Many girls and boys attain their "adult" or "near-adult" height by age 14 or 15 (see figures below). Practically, this means that there will be a perception that many children in the 14- and 15-year age group will "fit" a machine that also fits an adult better than they will fit a machine that also fits much of the 12 and 13 year old population.
- **In addition to the physical size of the child at the time of ATV purchase, many children, especially boys, will be growing rapidly around ages 14 and 15.** The rate of growth in terms of height increases significantly for girls around age 11 through 13 and for boys at around age 14 through 15 (see figures below). Practically, this translates to purchasers making accommodations for growth spurts that can give one the impression that a child will soon outgrow a Y-12 ATV even if it may provide an appropriate or acceptable fit at the time of purchase. When factoring in the projection of a child's growth, it is not unreasonable to anticipate economic disincentives to purchasing a Y-12 model ATV as well as interest in avoiding the time and effort associated with having to trade in or purchase another larger ATV in a relatively short period of time.



The height figure (left, above) was obtained from the National Center for Health Statistics, Division of Health Examination Statistics (1998). The height velocity figure (right, above) is from Tanner, Whitehouse & Takaishi (1966) and it represents the height velocity of the typical boy and girl in their study.

- **Age is not expected to be the definitive factor in assessing a 14 to 15 year old's readiness to engage in numerous other activities.** Parents and caregivers routinely make assessments regarding the extent to which their children are capable of performing various activities or using different products. By the time children are 14 or 15, parents have had many years of experience assessing the readiness of their child to perform many activities and/or use many different

products, including riding a bicycle in the driveway, on a sidewalk, on a street with a cul-de-sac, across town and through busy intersections, alone or with friends, etc.; using kitchen appliances such as toasters, mixers, microwaves, gas stoves, electric knives, and ovens with and without parental supervision; using tools such as scissors, hammers, screwdrivers, electric drills, and power saws; using outdoor power equipment such as string trimmers, lawn mowers, and riding tractors; and using other recreational products such as snow skis, snow boards, skate boards, roller blades, go-carts/fun-carts, sleds, and canoes. The vast majority of these products and activities do not come with specific age recommendations or requirements.

- **The experience of 14 to 15 year olds operating other vehicles may provide converging evidence to some parents that their child is reasonably suited to something other than a Y-12 model.** Some examples of other vehicles include cars, trucks, off-road motorcycles, etc. ATVs are used in many farming communities and it is common for younger teenagers to operate vehicles and machinery in that setting. Regarding automobiles, it is also noteworthy that many states allow children to drive a car, in a least some circumstances, between the ages of 14 and 16, with 42 states allowing children to enter a "learner stage" under the age of 16 and nine states allowing children under 15. It is also the case that, for decades, children under 16 have operated off-road motorcycles.
- **The current Y-12 category may be socially unattractive to larger 14- and 15-year-old children.** There is a potential stigma associated with an ATV that does not also accommodate some older children and adults to be viewed as "child-like." Not unlike items on the "kids menu" at a restaurant, 14 and 15 year old children may view such ATVs as socially less desirable.
- **The power available in current Y-12 ATVs has been effectively reduced and may be considered too low for larger 14 and 15 year olds.** It is our understanding that for emissions purposes, a transition is occurring from 2-stroke to 4-stroke engines in ATVs. This practically reduces the available power and increases the weight of an ATV with a given engine displacement, which effectively means that the CPSC system of categorizing ATVs that was developed many years ago has resulted in a lowering of available power for many Y-12 models. Considering this change in light of the previous discussions related to fit and perceptions of Y-12 ATVs versus some adult-size ATVs, this transition to 4-stroke engines could be expected to make the Y-12 category less desirable to larger 14- and 15-year-old operators.
- **Options for child operation of ATVs are limited compared to options available for off-road motorcycles.** The limitations on Youth ATV sizes combined with the limited age categories for Youth ATVs are easily contrasted with off-road motorcycles typically available at the same dealerships. The credibility of the current Youth ATV scheme may be strained in light of the many off-road motorcycle options available to youth and adults that are not linked to a specific and limited set of age restrictions. Thus, for off-road motorcycles, the initial focus of selection may be on goodness of fit in terms of size, skills, etc.,

whereas with ATVs, age may be the initial focus and may limit or be in conflict with a consideration of goodness of fit.

Our earlier work noted that the increasing number of offerings by manufacturers/sellers who do not follow CPSC-approved practices demonstrates a market interest in an expanded offering of Youth ATV options. The newer market entrants supply ATVs targeted at youth under age 16 that the CPSC would currently classify as adult-size. Of course, with increasing sales of such ATVs comes an increase in buyers who are not provided with the system of warnings, instructions and training that are made available to those who purchase from the established companies who conform to Action Plan practices approved by the CPSC.

In addition to addressing many of the fit issues that have been cited as deterrents to the purchase of Youth ATVs for use by many 14 and 15 year olds, we observed that the addition of a transitional category would allow for a system of warnings and instructions that would address intended use by children age 14 and older. These materials would be:

- provided in various modes/media (e.g., point-of-purchase, on-product, accompanying literature, etc.)
- targeted to the various audiences (e.g., parents, dealers, and youth).

In addition to these design and warning characteristics of a transitional ATV itself, we also anticipate that such a category would also likely be associated with other things that would promote ATV safety for 14 and 15 year olds, as well as ATV safety generally. For example:

- Training courses would be available nationwide to 14 and 15 year olds through the SVIA network of instructors. Presently, SVIA training is not open to 14 and 15 year olds on anything other than a Y-12 ATV.
- There is a potential for increased consideration of "goodness of fit" between operator and ATV. If a transitional category were available, it would present greater opportunity for discussion of factors other than age. As an example, there would be greater opportunity to introduce ATV fit guidelines, like those used by 4-H at the point of purchase and (1) help parents and prospective operators understand and appreciate the connection between proper fit and ATV risk, (2) increase parents' and children's understanding of the rider-active nature of ATVs and behaviors related to directional control and stability, and (3) help parents to better appreciate the importance of proper training and instruction and making "house rules" that keep unprepared and improperly fitting operators off ATVs that they own.

Based on the discussion above, we supported the CPSC's suggestion to further consider a transitional ATV. In summary, we found that consideration of expanding the selection of ATVs available to youth under 16 by adding a category of product that accommodates larger 14 and 15 year olds and many adults is consistent with:

- human factors data and human performance literature
- the experience and desire of a nationwide youth development organization (4-H) that has been actively involved in ATV training

- real-world ATV training of 14 to 15 year olds riding adult size ATVs
- a desire to address trends in market demand while simultaneously addressing the CPSC's desire for a system that supports proper age recommendations, warnings and instructions at the point-of-purchase and during use, as well as suitable ATV training programs
- a desire to enhance the credibility and relevance of CPSC age messages to parents and children
- a desire to enhance the credibility of other ATV safety messages that the CPSC has emphasized and that the established ATV manufacturers have provided over the years
- a desire for greater parental involvement at the point-of-purchase and elsewhere in assessing a child's readiness to operate an ATV
- a desire for greater parental appreciation for the rider-active nature of ATVs
- a desire for greater parental awareness of the connection between good fit and operation of an ATV
- a desire to reduce the frequency of 14 to 15 year olds riding larger adult-size ATVs

In response to comments received and after considering the May 2006 CPSC Staff Briefing Package, on August 10, 2006, the CPSC published its Notice of Proposed Rule (NPR). The May 2006 CPSC Staff Briefing Package did not provide indications of significant consideration of a transitional model. The categorization system proposed in the NPR does not introduce a new transitional model for older children. Instead, it eliminates engine displacement limits, essentially breaks the existing Y-6 category into two categories (Junior and Preteen), and removes speed adjustments and creates a lower speed limit for ATVs recommended for children ages 6 to 8 (see Figure 2.1). In contrast, the current draft of ANSI/SVIA-1-200X proposes the introduction of a new model for 14- and 15 year olds that is also expected to be attractive to children over 15 as well as many adults. Further consideration of the merits of the classification systems proposed in the NPR versus ANSI/SVIA-1-200X is a major objective of the work presented in this document.

<table>
<tr><th>Age</th><th>Status Quo</th><th>CPSC NPR</th><th>ANSI/SVIA</th></tr>
<tr><td>6</td><td rowspan="6">Y-6
10 mph
15 mph</td><td rowspan="3">Junior
10 mph</td><td rowspan="3">Y-6
10 mph
15 mph</td></tr>
<tr><td>7</td></tr>
<tr><td>8</td></tr>
<tr><td>9</td><td rowspan="3">Pre-Teen
10 mph
15 mph</td><td rowspan="4">Y-10
15 mph
30 mph</td></tr>
<tr><td>10</td></tr>
<tr><td>11</td></tr>
<tr><td>12</td><td rowspan="4">Y-12
15 mph
30 mph</td><td rowspan="4">Teen
15 mph
30 mph</td></tr>
<tr><td>13</td></tr>
<tr><td>14</td><td rowspan="2">T
20, 30, 38 mph</td></tr>
<tr><td>15</td></tr>
<tr><td>16+</td><td colspan="3">Adult</td></tr>
</table>

Figure 2.1: Existing, NPR and SVIA Categorization Systems

3. Additional Analysis Related to Reconsideration of ATV Categorization System

Following our activities related to consideration of a Transitional category of ATV, we were asked to conduct additional analyses in order to provide input on other aspects of the youth ATV categorization systems, including recommended speeds and age ranges for youth model ATVs for ages 6 through 16. Two types of investigations were conducted: (1) analysis of norms for speeds of products as they related to child age or development and (2) analysis of various aspects of child development that might be helpful in further considering the introduction of a Transitional category of ATV and its implications for the rest of the youth categorization system.

3.1. Investigation of Characteristics of Other Products as Related to Child Age or Development

Our investigation sought to compile information regarding types of motorized products currently marketed for various ages, 16 years and under, and characteristics of these products, with an emphasis on speed.

We undertook a review of product information available online and in local retail outlets. The review included over 130 motorized wheeled ride-on products, including 2-, 3-, and 4-wheel gas and electric products. For a product to be included in the analysis, certain criteria had to be met. First, the product had to have a reported top speed. Second, the product had to have a manufacturer-recommended age range (or distributor-recommended age range) or a minimum age. Many motorized products do not meet one or both of these two criteria. Thus, the present age/speed analysis has limits and does not necessarily provide a complete picture of the range of speeds that children of various ages may encounter.

An overview of manufacturers' recommended age ranges and product characteristics, along with a list of exemplar products, is shown in Table 3.1. This summary table indicates that, generally speaking, from a purchaser perspective and a child experience perspective, some typical top speeds and manufacturer age recommendations provided during the purchase process are 10-18 mph for recommended minimum ages 6 through 9; 15-45 mph for ages 10 through 13; and 17-38 mph for ages 14 through 16.

Table 3.1. Sampling of Age Recommendations and Product Characteristics

Manufacturer or distributor recommended age range (years)	Typical reported top speeds (mph)	Typical Reported Power Sources		Sample products
		Electric battery size (volts)	Gas engine displacement (cc)	
1 +	2	6	--	• Dora the Explorer Get Set Go! Kart by Fisher Price • Power Wheels Lil' Kawasaki by Fisher Price
2 +	3.5	6	--	• Junior Electric Scooter by Razor • Pink Power Racer by Step2
3 +	4.5 - 5	6 - 12	50 (two-stroke)	• Polaris Sportsman 2X Quad by Peg Perego • 50 Mini Adventure Sport Minicycle by KTM
6 +	10 - 14	24	50 - 125 (four-stroke, up to 4 HP)	• BladeZ Electric EX350 Scooter • Spirit Model 1050 Fun Kart by Manco
8 +	10 - 18**	24 - 36	50 (two-stroke)	• E100 Electric Scooter by Razor • Minimoto Jeep Dune Buggy
10 +	*15*	*24 - 36*	--	• *Minimoto ATV* • *Pocket Rocket by Razor*
12 +*	15 - 45	24	125 - 200 (four-stroke, 5 - 7 HP)	• Mini Electric Chopper by Razor • Critter 2x5 Fun Kart by Manco • Baja Motorsports 49 cc Dirt Bike (DR50) • Baja Motorsports 90 cc Dirt Bike (DR90)
14 +	*17*	*24*	--	• *Dirt Rocket MX500 Electric Motorcycle by Razor* • *E500S Electric Scooter by Razor*
16 +	20 – 38**	24	250 - 400 (four-stroke, 10 - 13.5 HP)	• ESR750 Electric Scooter by Goped • XTK 713E Fun Kart by Manco
Adult	20	36 - 48	--	• XP-700 Electric Powered Pocket Bike

*Point-of-purchase labeling on Baja Motorsports products recommended age 12; owner's manual recommended age 16.

**Some 8+ fun carts and 50 – 70cc "new entrant" ATVs go up to 25 mph and some 16+ fun carts and 110cc "new entrant" ATVs go 45 – 50 mph.

3.2 Child Development Patterns and ATV Categorization

In examining the child development literature for evidence of when children might be capable of operating ATVs of varying kinds or sizes, it is important to consider the fact that there is nothing "magical" about age that would immediately confer upon a child the ability to be able to perform any given set of tasks accurately, safely, etc. Specifically, there are individual differences across children of similar ages (see Table 3.2, adapted from Schmidt & Wrisberg, 2004) that makes it impossible to state that all children, or even adults of a certain age will be able to operate an ATV, drive a car, or perform any number of other activities.

Table 3.2. Individual Differences

Factor	Examples
Abilities	Finger dexterity, stamina, trunk strength
Attitudes	Open, closed, or neutral to new experiences
Body type	Stocky, tall, short, lean, muscular, round
Emotional makeup	Boredom, excitement, fear, joy
Fitness level	Low, moderate, high
Learning Style	Visual, verbal, kinesthetic
Maturity Level	Immature, intermediate, mature
Motivational Level	Low, moderate, high
Previous Movement Experience	Recreational, instructional, competitive

Our work to date suggests that parents understand this and, as a result, frequently make decisions regarding the readiness of their children to perform various tasks or use various products. More specifically, the basic recognition of individual differences in both children and adults implies that, when looking at categorizing ATVs according to age groups, a goal of finding an age by which every child (of that age and older) would be fully equipped to operate an ATV is not only impractical, but undesirable and counterproductive.

The following sections outline some of the more general findings from the child development literature that build on our previous analysis related to the merits of introducing a transitional model for ages 14 and up. Building on that framework, the primary question, assuming that a Transitional category exists, revolved around what other categories should be proposed and what the age ranges for these categories should be. From a practical standpoint, fewer categories appeared to be preferable to more, so we initially focused on examining the feasibility, from a developmental and anthropometric standpoint, of two categories in addition to the Transitional category. In order to address this question, we examined the literature on how children develop

abilities and skills and how this development relates to age. In addition, we examined anthropometric data, and human performance data as a function of age, as well as other sources of data that would provide guidance.

3.2.1. Abilities and Skills

Abilities are "stable, enduring traits that, for the most part, are genetically determined and that underlie a person's skilled performance" (Schmidt & Wrisberg, 2004, p. 27). Skills are "the capability of producing a performance result with maximum certainty, minimum energy, or minimum time, developed as a result of practice" (Schmidt & Wrisberg, 2004, p. 28). Table 3.3 shows some of the important differences between abilities and skills.[1]

Table 3.3. Characteristics of Abilities and Skills

Abilities	Skills
Inherited traits	Developed with practice
Stable and enduring	Modified with practice
Few in number	Many in number
Underlie the performance of many different skills	Depend on different abilities

There is no single "general motor ability." Rather there are different types of abilities that factor into the development of motor skills. Two such abilities are perceptual/motor and physical proficiency (see Table 3.4):

Table 3.4. Examples of Perceptual/Motor and Physical Proficiency Abilities

Perceptual/Motor Abilities	Physical Proficiency Abilities
Multi-limb coordination	Force control
Control precision	Static strength
Response orientation	Dynamic strength
Reaction time	Movement rate
Rate control	Stamina
Manual dexterity	Dynamic flexibility
Finger dexterity	Gross body equilibrium
Arm-hand steadiness	Balance with visual cues
Wrist-finger speed	Speed of limb movement
Aiming	Gross body coordination

[1] Taxonomies for describing and classifying abilities and skills are adapted from Schmidt & Wrisberg (2004).

Skills are developed using abilities as basic building blocks and are honed through practice. There are three characteristics that have been used to classify skills. The first classification of skills is by task organization (see Table 3.5). In this classification, skills can be discrete, serial or continuous. Discrete skills often include very brief actions with a distinct beginning and end. Serial skills are discrete actions that are performed together, usually in a particular order. Continuous skills are organized in such a way that the action unfolds without a recognizable beginning or end in an ongoing and often repetitive fashion. Operating an ATV can have elements of all three skills, depending on the organization of the ATV "task," with most operation classified as serial or continuous.

Table 3.5. Classifying Skills According to Task Organization

Discrete Skills	Serial Skills	Continuous Skills
Distinct beginning and end	Discrete actions linked together	No distinct beginning or end
Throwing a dart Catching a ball	Hammering a nail Gymnastics routine Brushing teeth Operating an ATV	Swimming Ice skating Operating an ATV

A second method of considering skills is the extent to which there is environmental predictability (see Table 3.6). "Open" skills are performed in an environment that is variable and unpredictable, whereas "closed" skills are performed in an environment that is stable and predictable. This classification is not binary, but rather acts along a continuum from open to closed. Operating an ATV can be considered a closed or open skill depending on the conditions in which the ATV is operated.

Table 3.6. Classifying Skills According to Environmental Predictability

Closed Skills ← → Open Skills		
Predictable environment	Semi-predictable environment	Unpredictable environment
Gymnastics Typing Cutting vegetables Operating an ATV	Walking a tightrope Driving a car Crossing the street Operating an ATV	Soccer Wrestling Operating an ATV

A third way to classify skills is in the relative importance of motor and cognitive elements (see Table 3.7). As with the previous classification, a skill is rarely, if ever, all "motor" or

all "cognitive," but rather there is a continuum between the two along which skills vary. For cognitive (or more cognitive) skills, the primary determinant of success is the quality of the performer's decisions regarding what to do. For motor (or more motor) skills, the primary determinant of success is the quality of the motor activity itself. Operating an ATV can be classified as a mixture of motor and cognitive elements. Both good decision-making and motor performance are needed in order to operate an ATV successfully.

Table 3.7. Classifying Skills According to Motor and Cognitive Elements

Motor Skills ← → Cognitive skills		
High jumping Weight lifting Changing a flat tire	Playing quarterback Operating an ATV	Playing chess Cooking a meal Coaching a sport

3.2.2. Learning Skills

For people to learn a motor task, they must practice. Initial learning of ATV operation can be conducted in a "closed" type of environment and then progress to a more "open" environment. As described by Schmidt & Wrisberg (2004) and other authors, this learning usually follows a pattern that includes a (1) verbal-cognitive stage, (2) motor stage, and (3) autonomous stage. The verbal-cognitive stage involves getting a general idea of what the task entails (i.e., how to sit, where to place feet, how to control speed, how to control steering, etc.). In the motor stage, skills are refined by organizing more effective, efficient, and predictable movement patterns (i.e., thinking tactically rather than strategically, building motor programs, increasing stability, efficiency, fluidity of movements, etc.). Finally, in the autonomous stage, movements are performed almost automatically with little or no attention. This places fewer demands on attention, increases capability to detect errors and improves the style or form of actions. Typical progression through these stages is shown in Table 3.8. Note that not every specific skill must progress through the early to later learning stages, as proficiency in one set of skills (e.g., batting a T-ball) can serve as a foundation for other skills (e.g., batting a baseball), greatly increasing the speed with which skill mastery occurs.

Table 3.8. Stages of Skill Learning

Early learning ←		→ Later Learning
Stiff-looking	More relaxed	Automatic
Inconsistent	More consistent	Consistent
Slow, halting	More fluid	Fluid
Timid	More confident	Confident
Indecisive	More decisive	Certain
Rigid	More adaptable	Adaptable
Inefficient	More efficient	Efficient
Many errors	Fewer errors	Recognizes errors

3.2.3. Development of Abilities and Skills as a Function of Age

As children get older, they move from very reflexive and rudimentary abilities to fundamental abilities and specialized skills (see Figure 3.1; Gallahue, 1989). Between ages 2 and 5, children start to develop and hone their initial and elementary fundamental abilities. By ages 6 and 7, these abilities become mature and they start to be used in the development and progression of skills.

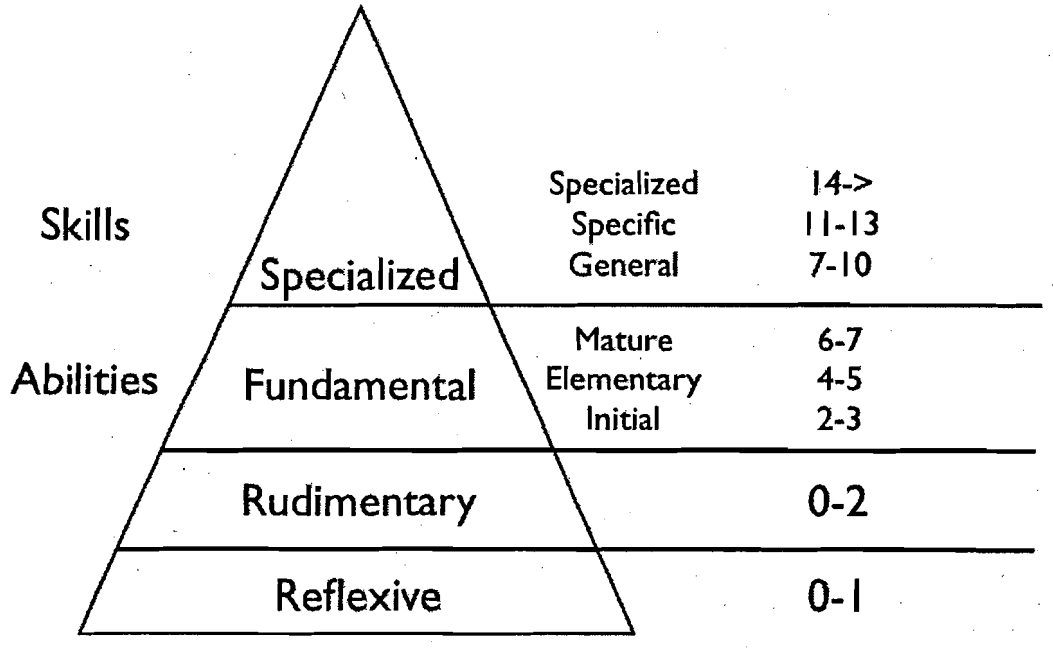


Figure 3.1. Gallahue's Stages of Motor Development

Fundamental abilities include such things as locomotion (walking, running, jumping, hopping), manipulation (throwing, kicking, punting, striking, bouncing, rolling), stability (bending, stretching, twisting, turning, swinging), etc. Figure 3.2 shows a graphic representation of the progression of a fundamental ability (walking).

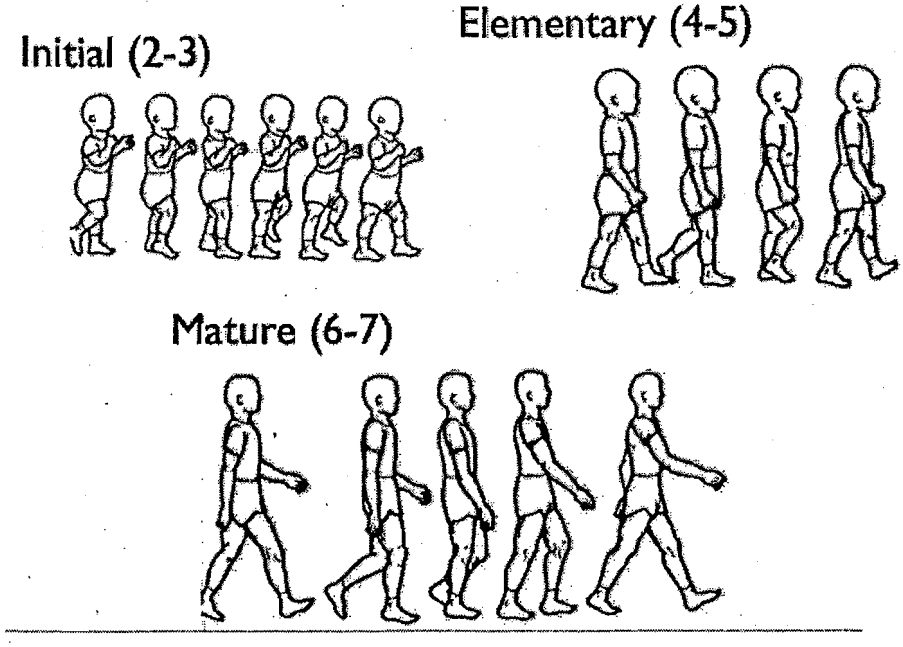


Figure 3.2. Graphic Representation of Development of Walking (adapted from Gallahue, 1989)

Gallahue's Specialized skills stages (General, Specific and Specialized) represent the application and refinement of fundamental abilities toward the development of specific skills. By ages 6-7, abilities are virtually as mature as they will ever be and these abilities are subsequently pressed into service in the development of skills. The first stage, General (ages 7 to 10), represents the child's attempts to refine and combine mature movement patterns and starts to stress accuracy and skill in performance. It usually accompanies a heightened interest in sports.

The second stage, Specific (ages 11-13), is where individuals narrow their focus from all activities to certain types of activities. Emphasis is placed on developing higher levels of proficiency through practice/experience. In addition, movement patterns become smoother, and more complex skills are refined and utilized. The third stage, Specialized (ages 14 and above), sees individuals further hone and refine skills to the point that they become automatic. Here, "fine tuning" occurs despite the fact that practices activities are already highly refined and reliable.

Reilly's classification of childhood play (1974) corresponds to Gallahue's motor development phases. Reilly's first stage, Exploratory, occurs in Gallahue's Rudimentary phase and is characterized by curiosity and exploration. Reilly's second stage, Mastery or Competency, is similar to Gallahue's Fundamental stage and is characterized by practice,

persistence and the quest for mastery over the environment. Reilly's third stage, Achievement, is similar to Gallahue's Specialized stage and is characterized by mastery of skills (especially in the competitive domain) and achievement.

These sources lend support to and were, in part, a basis for the SVIA classification system. The Y-6 category, which spans the years 6-9, incorporates Gallahue's Mature Fundamental abilities (ages 6-7) and General Specialized skills (ages 7-10). The Y-10 category, which spans the years 10-13, incorporates Gallahue's Specific Specialized skills (ages 11-13). The Transitional category, which spans the years 14 and older, incorporates Gallahue's Specialized skills (ages 14 and older).

3.2.4. Anthropometry

As discussed in Section 2, there is reason to believe that 14 and 15 year olds are, anthropometrically, more like 16 and 17 year olds than 12 and 13 year olds. For example, with regard to stature, a great deal of growth typically occurs around the age of 12 (for girls) and 14 (for boys), after which the rate of growth slows (see Figure 3.3). Grouping 12 through 15 year olds (as with the NPR Teen category) will likely result in a wider range of statures making fit on an ATV more difficult. Under the SVIA system, relative stability in growth is captured in the Y-6 and T categories and the impact of the especially variable nature of growth in ages 12 through 14 is limited, to the extent possible, in the Y-10 category.

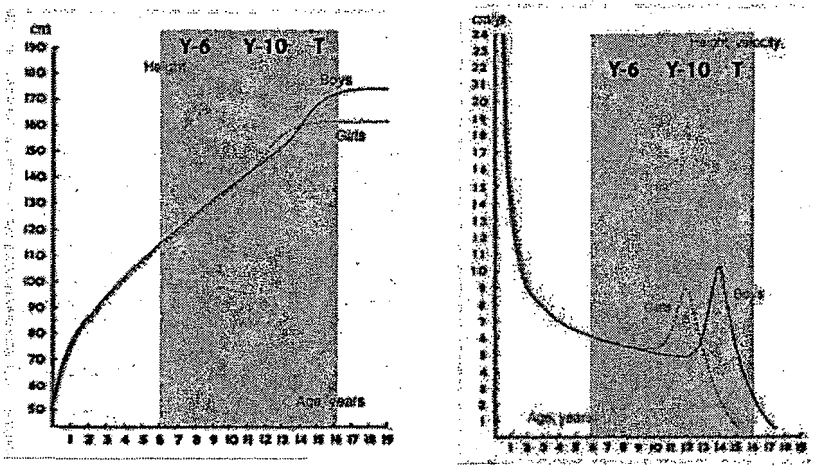


Figure 3.3. Stature and Growth Velocity as a Function of Age

There are several other anthropometric indices that show differentiation in the SVIA categories. For example, Figure 3.4 shows a plot of leg length as a function of age (the dot in the "center" represents the mean value for that age and the bars span the 5th and 95th percentiles). Similarly Figure 3.5 shows a plot of forward grip reach ranges as a function of age. These figures show homogeneity within categories and variability (or differentiation) between them. These figures were adapted from data collected by Snyder, et al. (1977).

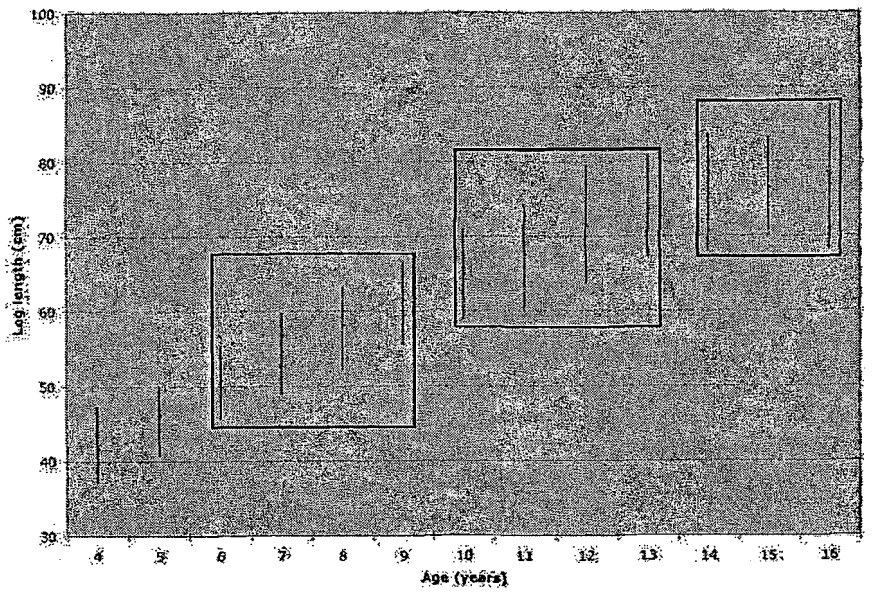


Figure 3.4. Leg Length as a Function of Age

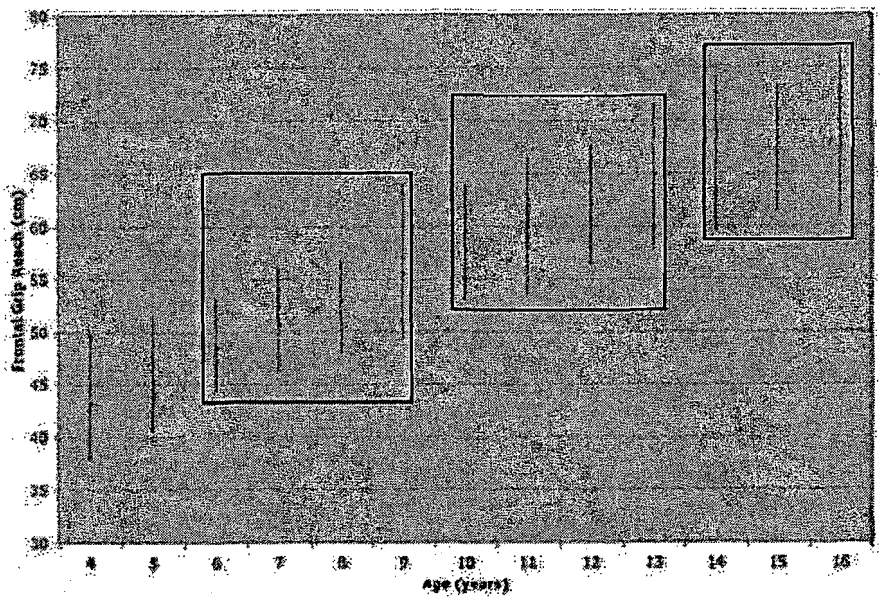


Figure 3.5. Forward Grip Reach Range as a Function of Age

3.2.5. Individual Performance Indices

There are numerous indications from the literature that children mature and progress in various performance abilities as they get older. None of these individual performance indices is dispositive with regard to age, but it does provide further evidence that making a distinction between 6-9 and 10-13 year olds is not inappropriate.

For example, Leavitt (1979) measured time to ice skate through a 50-foot course with pylons placed at 10-foot intervals, both while skating (only) and while skating while

stickhandling a puck. Figure 3.6 shows performance improving from ages 6-10 and then a relative leveling off of performance improvement starting at age 10 and continuing through age 20.

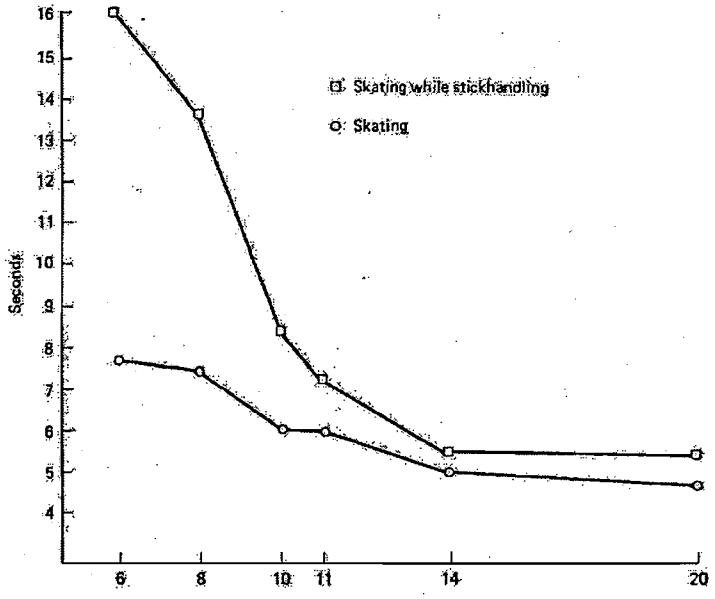


Figure 3.6. Temporal and Physical Accuracy

Another example is from Annett (1970). In this study, the author measured the speed of individuals moving pegs from one row to another with their right and left hands. Figure 3.7 shows significant performance improvements from ages 4 through 10 and then a relative leveling of performance improvements after that.

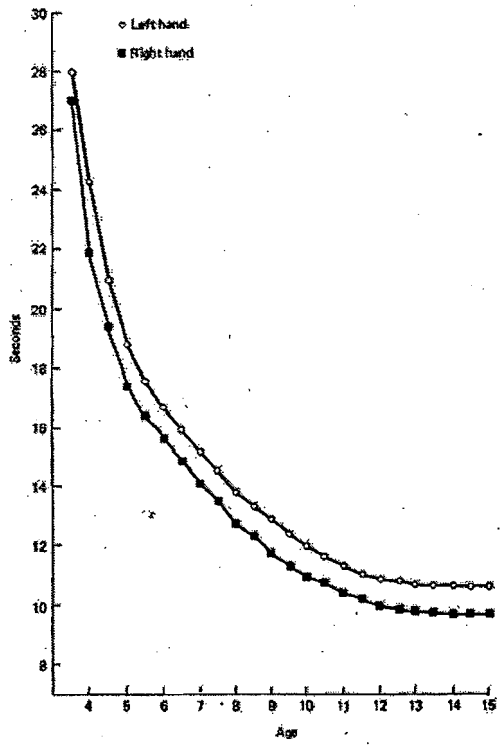


Figure 3.7. Speed of Manual Movements

Bairstow & Lazlo (1981) measured kinesthetic acuity of children of different ages by having them hold an object in each hand and, without looking, simultaneously move them up separate runways. The two runways were at different angles and after moving the object up and down them, subjects were asked to identify which of the two was higher. Figure 3.8 shows a decrease in errors from ages five to eight, with performance leveling off after that.

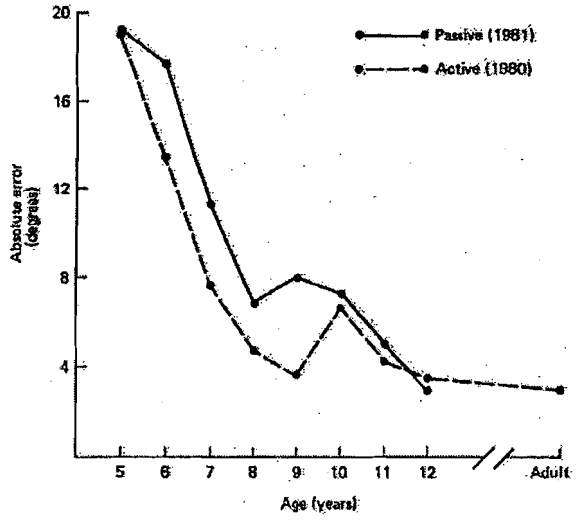


Figure 3.8. Kinesthetic Acuity

Whiting & Cockerill (1972) had subjects push a toy trolley up an inclined plane to a specific designated location along the plane. This plane was either covered by a screen or it was uncovered. Performance was measured in terms of distance from the designated stopping location. Figure 3.9 shows performance improvements, especially when the plane was covered, from ages 5-6 to 10-11 and then a relative decrease performance improvements after that.

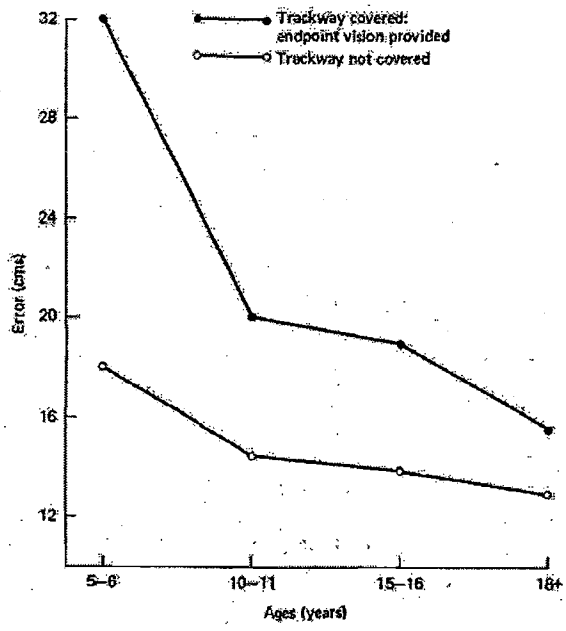


Figure 3.9. Force Control

These data suggest that, along with the other information available regarding child development and anthropometry, children improve in physical and physical/cognitive performance as they get older. These data suggest that performance improvements occur fairly rapidly between the ages of six and 10 and become better and less variable afterward.

3.2.6. Temperament

Little data exists regarding temperamental development in children, largely due to the difficulty in quantifying such a construct. However, one source (Steenbekkers, 1993) attempted to quantify temperament by age and correlate these measures with the potential for being in accidents. The author asked parents to rate their child along 15 dimensions (e.g., impulsiveness, risk taking, impetuousness, self-confidence, anticipation, etc.) and factor analyzed these into a dimension she labeled temperament. The distribution of temperaments, overall, shows that parents appear to be able to make a judgment regarding their child's temperament and that these judgments are fairly normally distributed (see Figure 3.10).

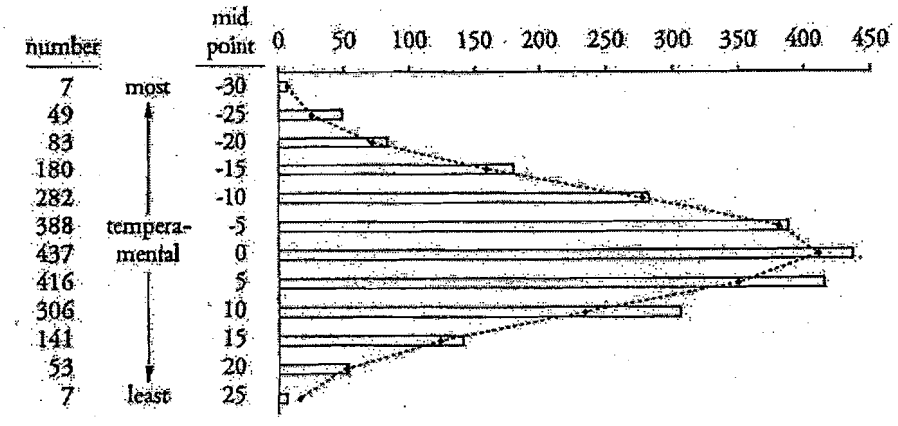


Figure 3.10. Distribution of Temperament Scores

Steenbekkers plotted the average temperament scores for boys and girls by age (see Figure 3.11). Increases in temperament score are seen from ages 6 through 9 for boys and girls and again from ages 10 through 13 for boys.

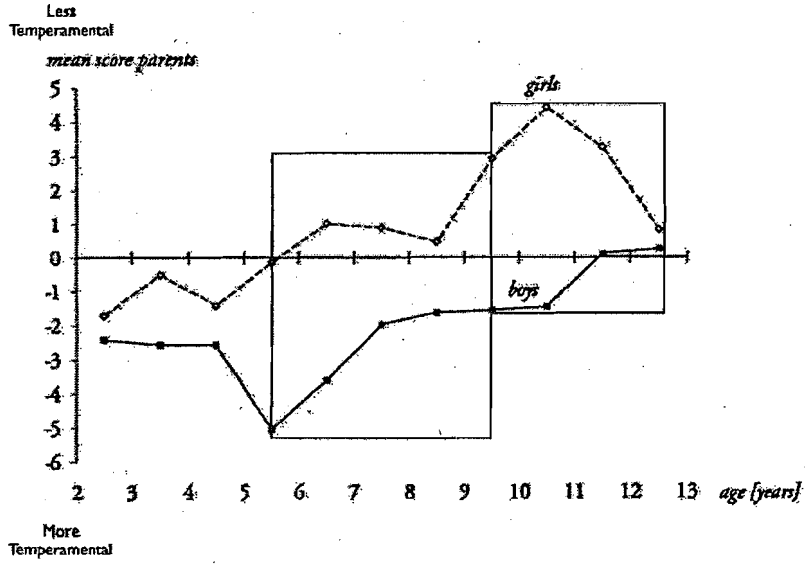


Figure 3.11. Average Temperament Scores by Age and Sex

3.2.7. Conclusions

As previously indicated, it is widely recognized that there is no specific age, set of characteristics, or formula to definitively determine one's readiness to use all sorts of products or participate in any number of activities, including ATV operation. Thus, we recognize that, in any system of ATV classification based on age, there will not be a single factor that leads to bright lines of demarcation. Thus, we sought to consider the issue of age and speed classification from a variety of perspectives and to find converging

evidence for desirable characteristics of the system. Collectively, our investigations and subsequent input to the Technical Advisory Panel were supportive of the proposed SVIA system that includes the Y-6, Y-10 and T categories in the SVIA system. Starting with the goal of reducing the frequency of children under 16 operating adult size ATVs and then considering ways of promoting use of age appropriate ATVs, the characteristics of the SVIA system are well suited to accommodating various aspects of child development, promoting purchase of age appropriate models (which includes safety information and training opportunities not afforded by adult size ATVs for children under 16), and generally promoting the goodness of fit between child operators and ATVs (a point that people involved in ATV youth training have stressed throughout our investigations).

4. Overview of Proposed ANSI/SVIA-1-200X Standard and CPSC Notice of Proposed Rulemaking (NPR)

4.1. Proposed ANSI/SVIA-1-200X Standard

In late 2005, the SVIA Technical Advisory Panel (TAP) began reviewing the existing American National Standard for Four Wheel All-Terrain Vehicles—Equipment, Configuration, and Performance Requirements (ANSI/SVIA-1-2001) for possible updating and revision using the canvass method. The most recent draft of the revised American National Standard for Four Wheel All-Terrain Vehicles (ANSI/SVIA-1-200X, Draft as of September 7, 2006) was released for canvass on September 7, 2006.

ANSI/SVIA-1-200X contains provisions for ATV categories as summarized in Table 4.1.

Table 4.1. Summary of ANSI/SVIA-1-200X Provisions for Selected ATV Categories

Category	Intended Ages	Speed Limiting Device Capability (mph)	Maximum Unrestricted Speed (mph)
Y-6	6 +	10	15
Y-10	10 +	15	30
*Y-12**	*12 +**	*15**	*30**
T	14 +**	20 and 30	38

(ANSI/SVIA-1-200X, Draft as of September 7, 2006, Sections 3 and 6)

*Section 1 of ANSI/SVIA-1-200X states that provisions regarding Y-10 and T ATVs will go into effect four years after the date of approval of the standard, at which time provisions for Y-12 ATVs will expire.
**Section 2 of ANSI/SVIA-1-200X states that this model is intended for "recreational use by an operator age 14 or older under adult supervision or an operator age 16 or older."

The results of ASE's investigations discussed above in Sections 2 and 3 were considered by the SVIA TAP in the development of the ATV categories in the draft ANSI/SVIA-1-200X standard.

ANSI/SVIA-1-200X also contains provisions for ATV warning labels for Type I (one operator, no passengers) and Type II (operator and up to one passenger) ATVs. These provisions, as shown in the draft standard in Section 4.24 and Figures 5 through 16, are attached in Appendix A.

4.2. U.S. CPSC Notice of Proposed Rulemaking (NPR)

On October 14, 2005, the CPSC issued an Advance Notice of Proposed Rulemaking (ANPR) regarding ATVs and requesting comments and information. This was followed in May 2006 with a CPSC staff ATV Safety Review briefing package, which recommended that the Commission issue a Notice of Proposed Rulemaking (NPR) regarding standards for ATVs. On August 10, 2006, the CPSC issued an NPR, which

referenced materials from the May 2006 staff briefing package. The NPR contains provisions for ATV categories as summarized in Table 4.2.

Table 4.2. Summary of CPSC NPR Provisions for Selected ATV Categories

Category	Age (years)	Speed Limiting Device Capability (mph)	Maximum Unrestricted Speed (mph)
Junior	6 +	--	10
Pre-teen	9 +	10	15
Teen	12 +	15	30

(CPSC, 2006, p. 45908)

The NPR also contains provisions for ATV warning labels for Youth ATVs (CPSC, 2006, proposed §1515.10) and adult and "tandem" ATVs (CPSC, 2006, proposed §1410.10 and 1410.19).

5. ASE Research in Response to NPR

5.1 Introduction

In addition to other activities, ASE conducted original research in response to the CPSC publication of its NPR. In particular, studies described in this section were conducted to assess the NPR's proposed changes to the Age Recommendation Warning Label, and to assess the relative merits of the NPR and ANSI/SVIA categorization systems.

5.2. General Method

Two studies were conducted, one with adults and one with youths. In the first study, a total of 44 adults participated in structured individual interviews, focus group sessions and/or open-ended interviews (see Table 5.1). In the second study, structured interviews were conducted with a total of 19 youths between ages 10 and 18. Both adult and youth participants were recruited at ATV riding areas and ATV dealerships, and through newspaper advertisements, flyers posted at retail establishments (including ATV dealerships) and through other research contacts available to ASE.

The interviews were conducted in several parts of Southeast Michigan and participants with ATV riding experience reported use of ATVs in a variety of states, including Alabama, Arizona, California, Canada, Colorado, Florida, Illinois, Indiana, Kentucky, Minnesota, New York, Ohio, Oregon, Tennessee, Texas, Washington, and West Virginia.

Table 5.1. Summary of 44 Participants in Study #1

	Number Participating in Structured Interview	Number Participating in Focus Groups or Open-Ended Interviews
Parents or stepparents with children age 10 to 18 who had operated or might be interested in operating ATVs	36	7 (Focus Group #1)
Grandparents and uncles who operated ATVs with their relatives age10 to 18	4	4 (Focus Group #2)
Dealership employees	0	4 (Open-Ended Interviews)

5.3. Study #1 - Adult Interviews

5.3.1. Method

5.3.1.1. Participants

A total of 40 adults participated in structured interviews. Screening questions were used to identify prospective participants who had children between the ages of 10 and 18 that

had either operated an ATV or would be likely to operate an ATV if given the opportunity. In addition, participants needed to currently own an ATV, be willing to consider owning an ATV, or consider allowing their child to operate an ATV. The sample of adults consisted mainly of parents and stepparents, but other relatives of children 10 to 18 were also included. More specifically, there were 36 parents or stepparents who met the criteria and three grandparents and one uncle who operated ATVs with their relatives age 10 to 18, for a total of 40 adult structured interview participants. Of these 40, 11 also participated in focus group sessions (see Table 5.1). Thirty-five participants were interviewed in person and five were interviewed over the telephone. In the telephone interviews, the stimuli normally presented to subjects in person were presented electronically via computer.

The 40 participants, 17 male and 23 female, had an average age of 43.8 years, ranging from 25 to 59 years. Seven (17.5%) were high school graduates, nine (22.5%) had some college, and twenty-four (60%) were college graduates.

Background information regarding riding experience was collected regarding participants and their children. Of the adult participants, 33 (82.5%) had operated an ATV at least once and seven (17.5%) had never operated one. Seventeen (42.5%) had operated an ATV more than 20 times, eight (20%) had operated an ATV 10-20 times, and eight (20%) had operated an ATV less than 10 times. Regarding the children of participants, thirty-six (90%) of the adult participants reported that their children had operated an ATV and four reported that their children had never done so (but would be willing to do so if given the opportunity). Participants were also asked how many others in their household had ever operated ATVs. The average number of operators in the household, including the participants themselves, was 3.15 (ranging from 0 to 6 people). The distribution of the number of operators is shown in Figure 5.1.

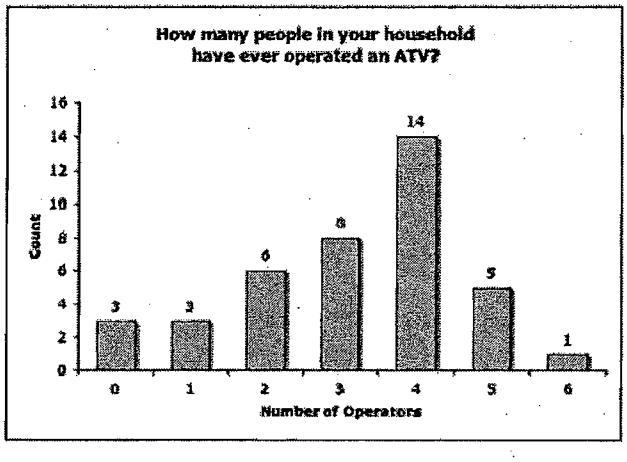


Figure 5.1. Distribution of Number of People in Participants' Households Who Had Ever Operated ATVs

Regarding ATV ownership, 21 adults (52.5%) reported that they currently owned an ATV; 17 (42.5%) reported that they would consider owning an ATV if cost was not a factor and they had a place to ride it; and the remaining two adults said that they would

consider allowing their child to operate a friend's, neighbor's, or relative's ATV. Of the 19 participants who did not own an ATV, nine were considering purchasing an ATV in the next couple of years. Two participants did not currently own an ATV but had owned ATVs in the past. The distribution of the number of ATVs owned by the adult participants is shown in Figure 5.2.

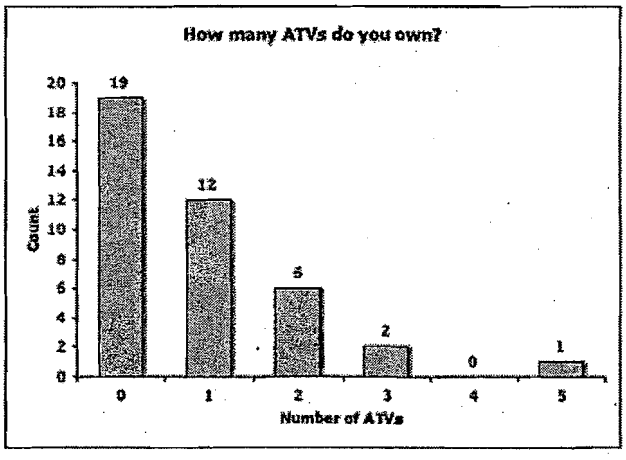


Figure 5.2. Distribution of Number of ATVs Owned

The 21 participants that owned one or more ATVs were asked to recall information about the size of the ATV(s) they owned (see Figure 5.3). Three participants recalled owning one ATV with a displacement of 90cc or less. Each participant that owned such an ATV also owned at least two other ATVs.

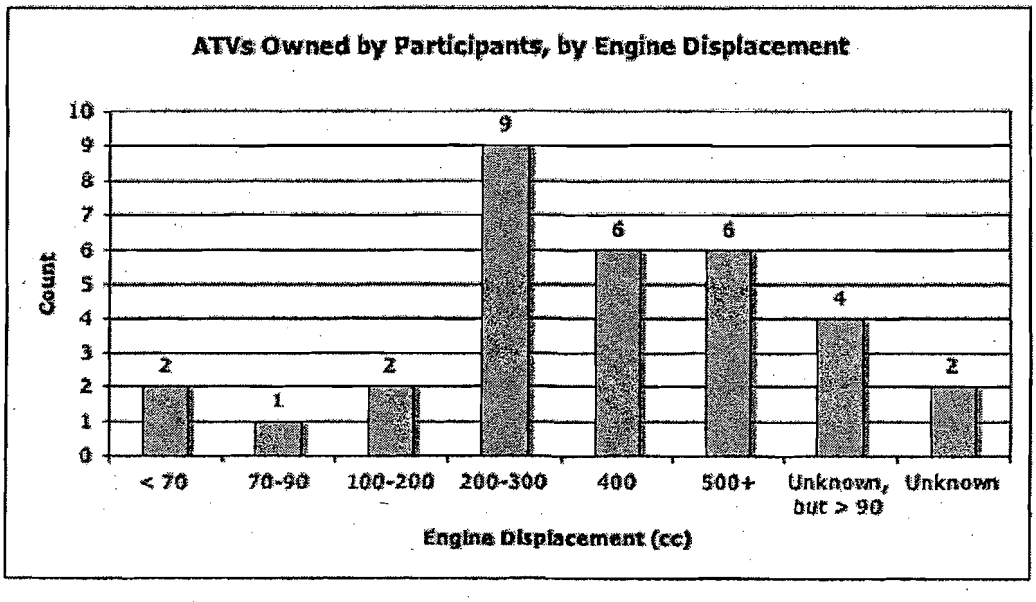


Figure 5.3. Distribution of ATVs Owned by Participants, by Engine Displacement

5.3.1.2. Procedure

The structured interviews followed a questionnaire comprised of questions on three basic topics: (1) questions about an Age Recommendation Warning Label, (2) questions about Youth ATV categories, and (3) questions about the participant's background. A sample questionnaire is shown in Appendix A.

To begin, participants were asked a series of qualifying questions. Qualifying participants were then shown a picture of an ATV and given a brief description of ATVs. Next, participants were asked a series of questions related to labeling and ATV categories, which will be discussed in the following sections. The entire interview lasted approximately 25-30 minutes and, upon completion, participants were paid a stipend of $25-$40.

5.3.1.2.1. Procedure for Portion of Interview Regarding Age Recommendation Warning Label

Participants were told that they were going to be asked some questions about their impressions of a label on an ATV. Participants were then shown a picture of a possible location for such labeling on an ATV (see Figure 5.4).

Figure 5.4. Location for Labeling on ATV

Participants were then shown one of two labels (see Figure 5.5).

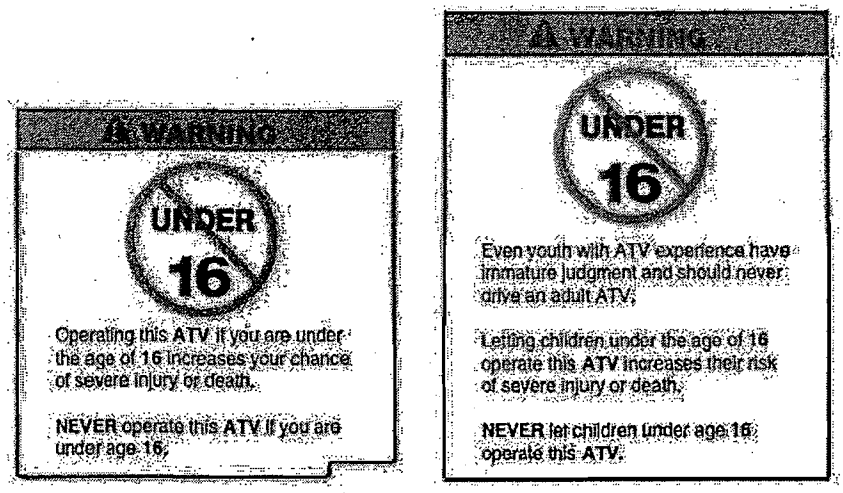


Figure 5.5. Age Recommendation Warning Labels, SVIA (label A) and NPR (label B)

Participants were then asked a series of questions about their children in relation to the information on the labeling. In particular, participants were asked to respond to questions based on their oldest child between ages 10 and 15 who had interest in operating an ATV, or, if participants only had children between ages 16 and 18, they were asked to answer questions based on their youngest child who was interested in operating ATVs, in the context of when that child was 14 years old. The distribution of ages for the 40 children selected (23 boys and 17 girls; one child per adult participant) is shown in Figure 5.6.

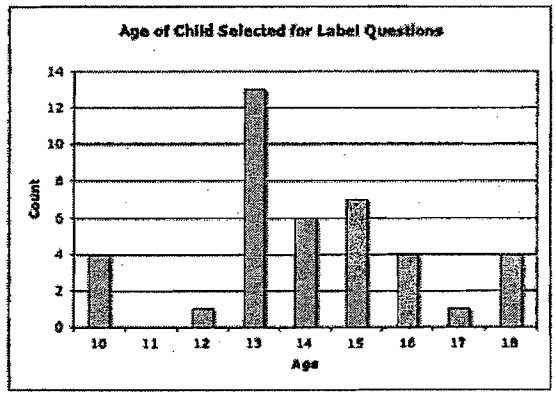


Figure 5.6. Age of Children Selected for Labeling Questions

The ages of these children were not significantly different between label conditions ($p > .05$). There was also no difference in the ages of the children as a function of label when children ages 16-18 were coded as being 14 years of age ($p > .05$).

There were also no significant differences between labeling conditions with regard to any of the demographic variables for participants (e.g., age; $p > .05$, gender; $p > .05$, number of times operating ATVs; $p > .05$, number of others in household who operate ATVs; $p > .05$, number of ATVs owned; $p > .05$)

5.3.1.2.2. Procedure for Portion of Interview Regarding ATV Categorization Systems

The second part of the structured interview with adults addressed their response to CPSC NPR and ANSI/SVIA-1-200X categorization systems. Participants were shown two sets of ATV categories (see Figure 5.7), and it was explained that both sets of categories were different from the set of categories currently in use. Half of the participants (Conditions 1 and 3) were shown the chart in the Figure 5.7 and half (Conditions 2 and 4) were shown a chart with the order and titles of Set A and Set B reversed.

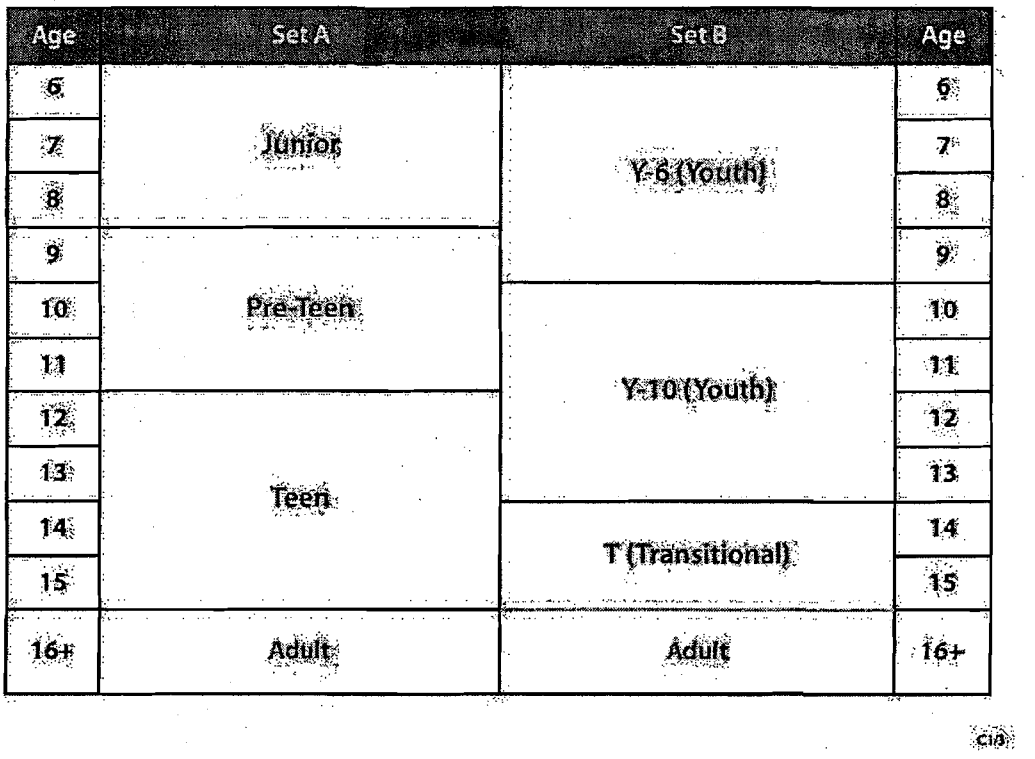


Figure 5.7. Chart of ATV Categories

After the first chart was explained participants were then shown a second chart, which was the same as the first chart, except that it provided additional information about the speeds of each category of ATV (both maximum speeds and restricted speeds, if applicable). This second chart is shown in Figure 5.8.

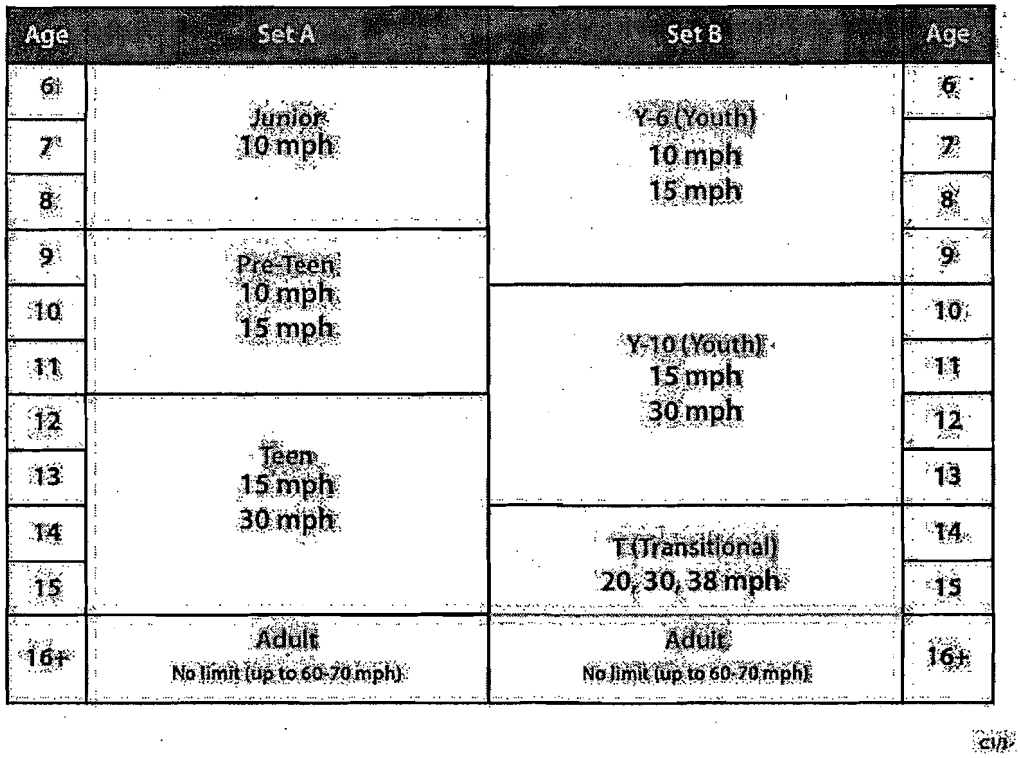


Figure 5.8. Chart of ATV Categories, With Speeds

Following explanation of the second chart, participants were asked if they understood the numbers on the chart, and were told they could ask questions about the chart at any time. Participants were then asked questions about their preference for different kinds of ATVs, as well as the set of ATV categories.

5.3.2. Results

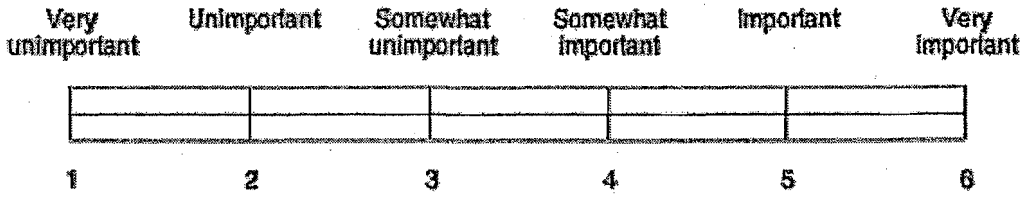
5.3.2.1. Regarding Age Recommendation Warning Label

5.3.2.1.1. Message Comprehension

Participants were asked "According to this label, should you let a child under age 16 operate an ATV with this label on it?" Thirty-nine of the 40 participants (97.5%) answered, "No" and one person said, "Yes." In discussions with the one participant who initially answered, "Yes," it became clear that he understood that the label stated that children under 16 should not operate ATVs with this label, but he disagreed with the proposition. Thus, 100% of the participants understood that the label was telling them not to let a child under 16 operate an ATV bearing the label.

5.3.2.1.2. Importance of Recommendation

Participants were later asked "Using this scale, based on your review of the label, how important is it that the operator be 16 years or older?" Participants used the following scale to answer the question:

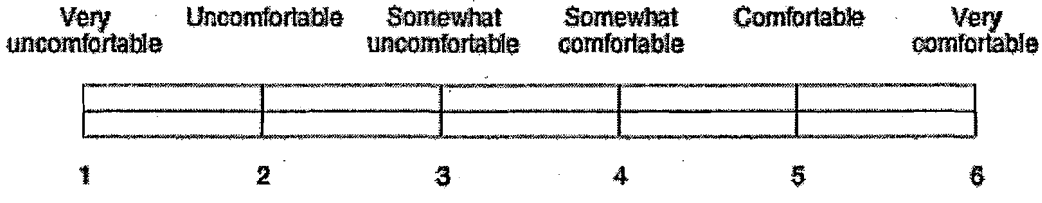


There was no effect of label condition on ratings of importance ($p > .05$). The overall average rating was 5.1, which is associated with the verbal anchor "Important."

5.3.2.1.2. Comfort With Purchase or Operation

Participants were asked how comfortable they would be allowing their child to operate an ATV with the label on it and how comfortable they would be purchasing an ATV with the label on it for use by their child.

They answered using the following scale:



Again, label condition had no effect on ratings of parents' comfort in allowing their child to operate ($p > .05$) or in purchasing an ATV with the label ($p > .05$). The overall averages for comfort in operation (2.95) and comfort in purchase (3.05) are both associated with the verbal anchor "Somewhat uncomfortable."

While the label condition did not affect parents' comfort level in these questions, the age of their child did influence their ratings of comfort. A regression analysis was performed for parents' comfort level as a function of the age of the parent's child (with 16 to 18 year old children coded as 14 year olds). These analyses showed a significant, positive correlation between the child's age and the parent's comfort level ($r = .48$, $R^2 = .23$, $p < .01$ for operation; $r = .45$, $R^2 = .19$, $p < .01$ for purchase). Figures 5.9 and 5.10 show the relationship between ratings and ages, with larger circles indicating a larger number of observations. These results indicate that the younger the child, the lower the parent's comfort level, and vice versa. Figure 5.9 also illustrates how age 14 has a rather uniform distribution across all comfort ratings relative to other ages.

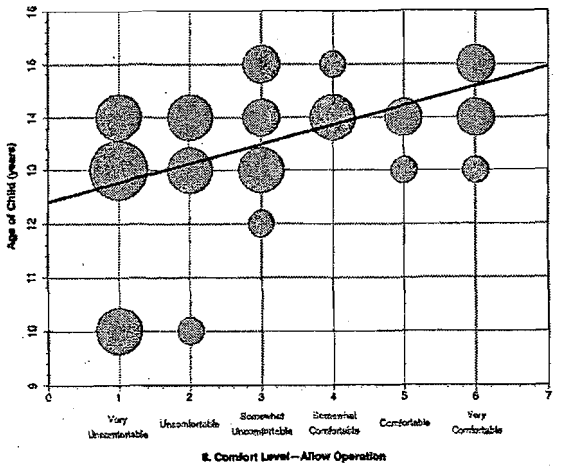


Figure 5.9. Distribution of Comfort Levels With Operation, by Age of Child

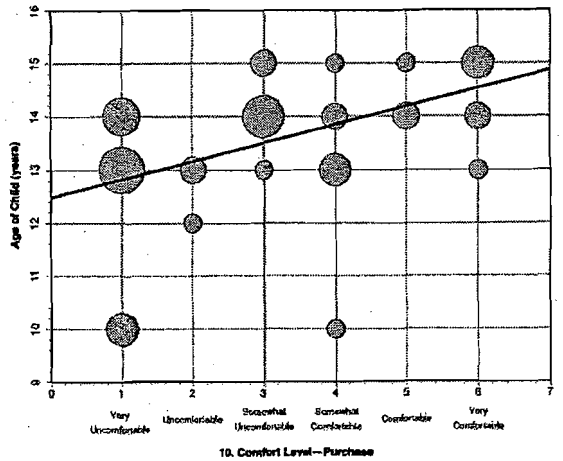
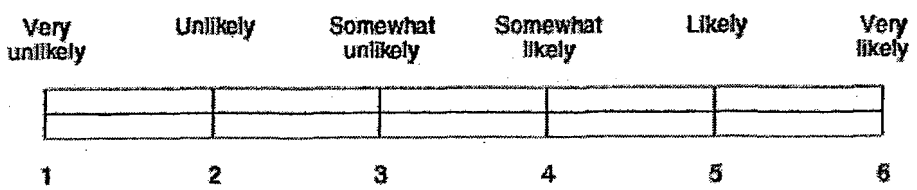


Figure 5.10. Distribution of Comfort Levels With Purchase, by Age of Child

5.3.2.1.3. Likelihood of Considering the Label in Operation and Purchase

Participants were asked how likely it is that they would consider the label in deciding whether or not to let their child operate the ATV and how likely it is that they would consider the label in deciding whether or not to purchase the ATV for use by their child.

They answered using the following scale:



There was no effect of label condition on rated likelihood of considering the label in their operation decision ($p > .05$) or purchase decision ($p > .05$). The overall averages for likelihood of considering the label in deciding about operation (3.98) and purchase decisions (3.93) are both associated with the verbal anchor "Somewhat likely."

While the label condition did not affect parents' likelihood of considering the label in these questions, the age of their child did influence their ratings. A regression analysis was performed for parents' likelihood of considering the label information as a function of the age of the parent's child (with 16- to 18-year-old children coded as 14 year olds). These analyses showed a significant, negative correlation between the child's age and the parent's likelihood of considering the label ($r = -.49$, $R^2 = .24$, $p < .01$ for operation decision; $r = -.49$, $R^2 = .19$, $p < .01$ for purchase decision). Figures 5.11 and 5.12 show the relationship between ratings and ages, with larger circles indicating a larger number of observations. These results indicate that parents are more likely to consider label information when their child is younger, and vice versa.

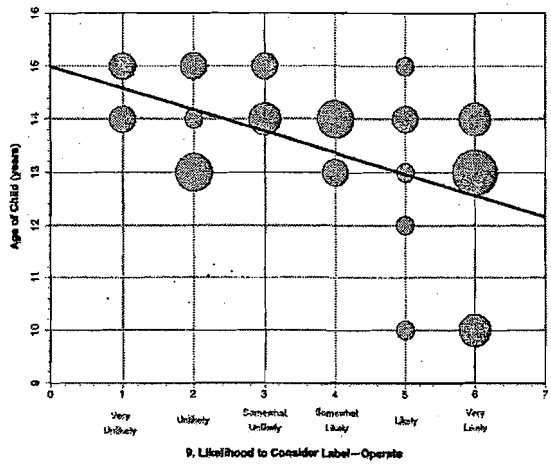


Figure 5.11. Distribution of Likelihood of Considering Label in Operation Decision, by Age of Child

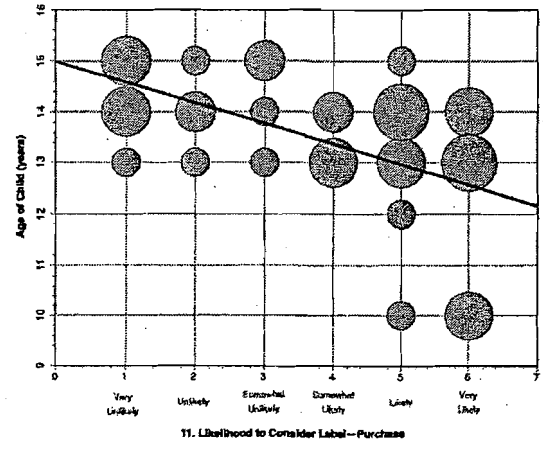
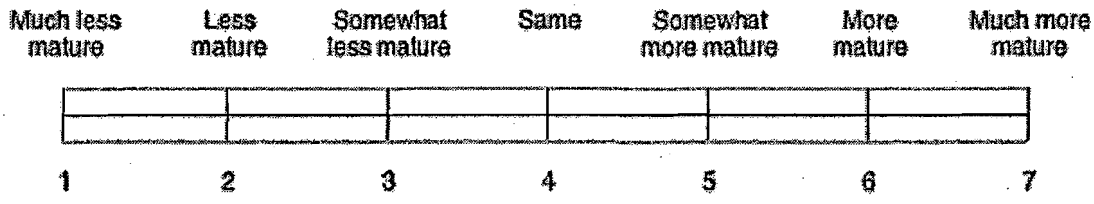


Figure 5.12. Distribution of Likelihood of Considering Label in Purchase Decision, by Age of Child

5.3.2.1.4. Parents' Perception of their Child's Maturity

Participants were asked to rate, in terms of judgment, how mature their child was compared to others his/her age and, in terms of judgment, how mature their child was compared to an average 16 year old.

They answered using the following scale:



There was no effect of label condition on ratings of maturity in terms of how mature parents considered their child relative to others of the child's age ($p > .05$). The overall rating of maturity relative to other children the same age (5.5) is midway between the verbal anchors of "Somewhat more mature" and "More mature." There was also no effect of label condition on ratings of maturity in terms of how mature parents considered their child relative to an average 16 year old ($p > .05$). The overall rating of maturity relative to an average 16 year old (4.0) is associated with the verbal anchor "Same." As one would expect, there was a significant, positive correlation between the child's age and their parent's ratings of maturity compared to an average 16 year old, $r = .57$, $R^2 = .32$, $p < .01$ (see Figure 5.13).

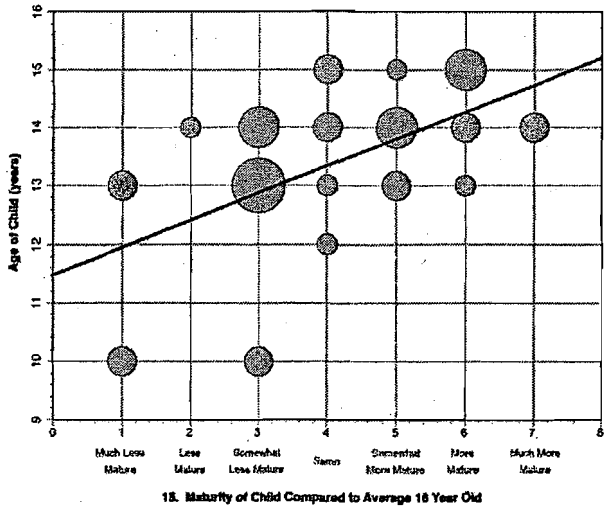
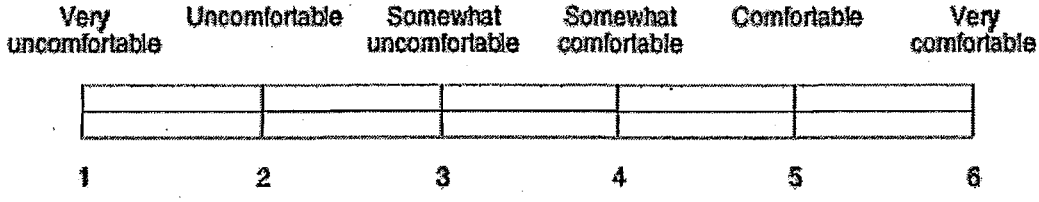


Figure 5.13. Parents' Rating of Child's Maturity Compared to an Average 16 Year Old, by Age of Child

5.3.2.1.5. Comfort Level with Different Age Children

Participants were asked how comfortable they would be allowing a 15 year old with mature judgment to operate an ATV bearing the label. The question was then repeated for ages 14, 13, and 12.

Participants used the following scale to answer:



There was no effect of label condition on participants' ratings of their comfort ($p > .05$). There was, however, a significant difference in participants' rated comfort level as a function of the child's age, $F(3, 114) = 82.14$, $p < .01$. Figure 5.14 shows that participants were significantly more comfortable allowing a child with mature judgment to operate an ATV as the child gets older.

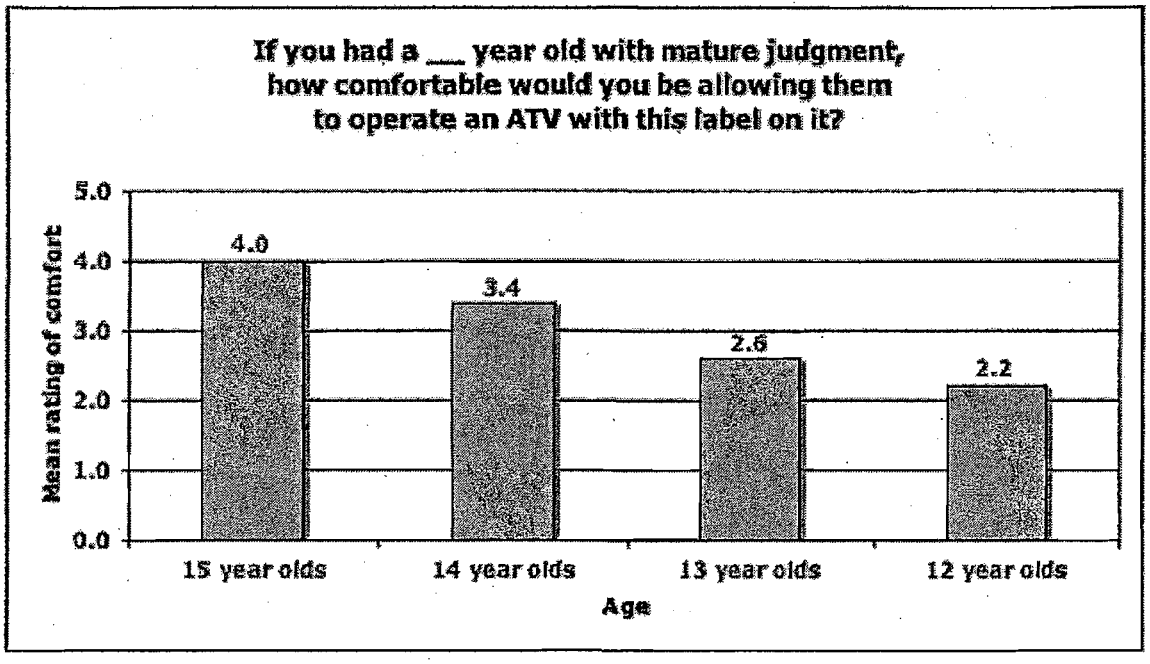


Figure 5.14. Mean Ratings of Comfort for Given Ages 12-15

5.3.2.1.6. Maturity of Different Age Children

Participants were later asked how many children out of 100 of a certain age (12, 13, 14, or 15) had mature enough judgment to able to operate an ATV recommended for ages 16 and over. Each of the four ages was asked as a separate question. There was no effect of label condition on participants' responses regarding the percentage of children of different ages who have mature enough judgment to be able to operate an ATV recommended for ages 16 and over ($p > .05$). There was, however, a significant difference in participants' responses as a function of the child's age, $F(3, 111) = 75.9$, $p < .01$. Figure 5.15 shows that participants thought significantly more children would have mature enough judgment to operate Adult ATVs as those children got older.

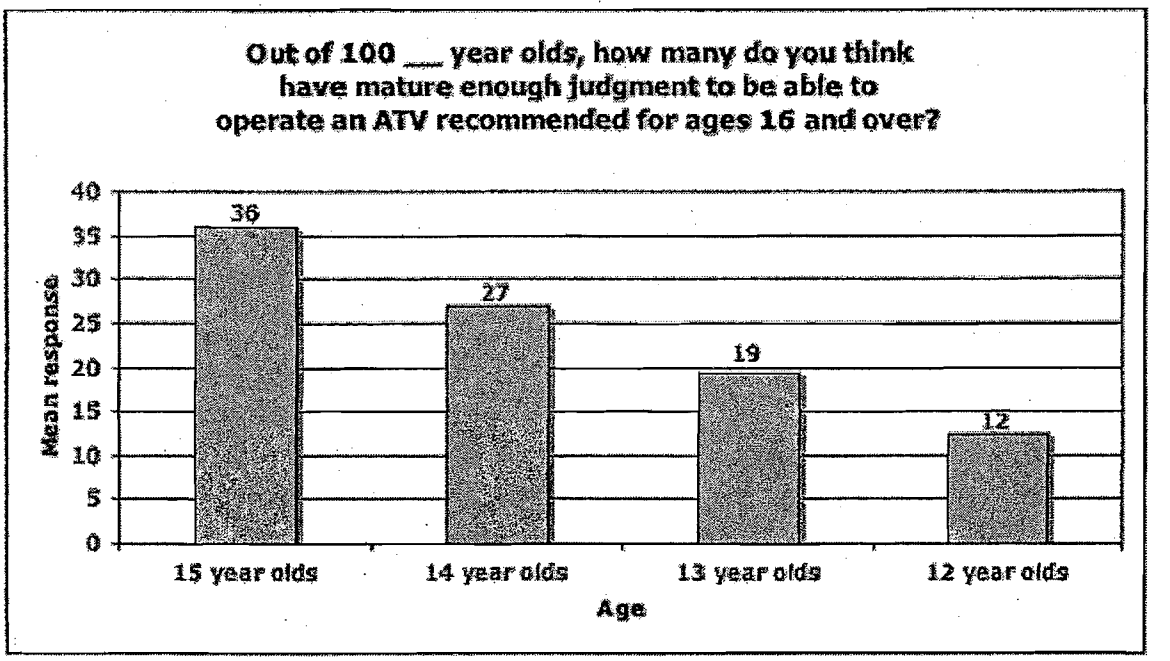


Figure 5.15. Estimated Number Mature Enough to Operate

5.3.2.2. Regarding ATV Categorization Systems

5.3.2.2.1. Purchasing an ATV for One Child Age 6 to 15

Participants in the structured interview were asked to consider scenarios in which they would like to purchase an ATV and they were then asked a number of questions for each scenario. In all scenarios, participants were asked to assume that they did not already own an ATV and that they would be buying only one. In the first of these scenarios, participants were asked to assume that they had a child interested in operating ATVs and that they wanted to purchase an ATV for that child. Participants were asked to respond to the related series of questions first assuming that the child whom they were purchasing the ATV for was 6-years-old, then 7-years-old, and so on for each year up to age 15.

For each age, 6 through 15, participants were first asked to select, from all the options on the chart (see Figure 5.8), which category ATV they would be most likely to purchase; this category was recorded as their "first choice." Then participants were asked to select, from only the options in the opposite set, which category ATV they would be most likely to purchase; this category was recorded as their "second choice." Those participants who selected the Adult model as their first choice (twenty instances total) were not asked to select a second choice, since the Adult category was not unique to a set. Thus, there were 40 subjects x 10 age levels for a total of 400 "first choice" selections, and 400 minus 20 second choice selections (less one missing data point due to procedural oversight) for a total of 379 second choice selections.

One way of looking at the categorization data is to consider whether or not people selected an age-appropriate category as their first and/or second selection. Taking into account the number of instances in which a participant chose an adult model as their first

selection (n=20) along with the remaining pairs of selections (n=379), the distribution of selections (n=399) is:

Both selections (one from the NPR set and one from the SVIA set) were age-appropriate	52%	207
Mixed—One selection was age-appropriate and one selection was age-inappropriate	34%	135
Both selections were age-inappropriate	9%	37
Adult category was selected first	5%	20
Total	100%	399

A majority (52%) of the selection pairs were both appropriate for the age of the child under consideration. Figure 5.16 shows the distribution of selections where both were age-appropriate by age. This figure shows that 33 out of 40 possible selection pairs (82.5%) were both age-appropriate for 6-year-old operators, but that only 11 out of 40 (27.5%) were both age-appropriate for 9 year olds, which is an age near a transition from one age category to another. This occurs again at age 11 and 13.

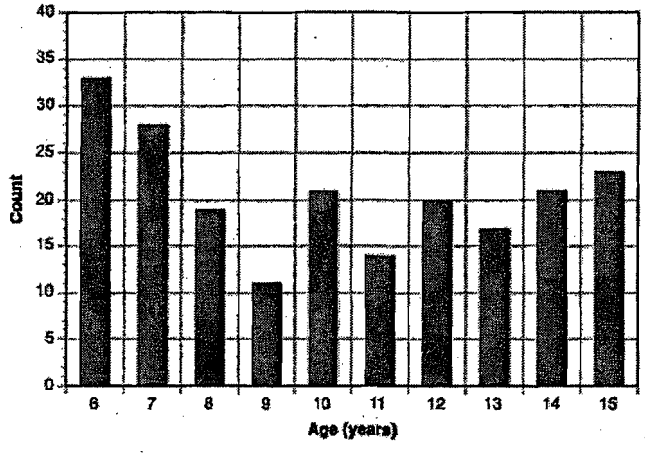


Figure 5.16. Distribution of Selections Where Both Were Age-Appropriate

Age-inappropriate selections were more common in the first and last year of a category (for both the NPR and SVIA sets). Figure 5.17 shows the general decline in appropriate "first choice" selections for a category (in both the NPR and SVIA sets) as one gets to the

end of its range [$r = -.71$, $R^2 = .50$, $F(1, 18) = 17.8$, $p < .01$]. This figure shows that people were more willing to select another category (usually one category above the age-appropriate category) when the child reached the end of the age-appropriate category (i.e., selecting a Teen model for an 11 year old; selecting a Y-10 model for a 9 year old, etc.).

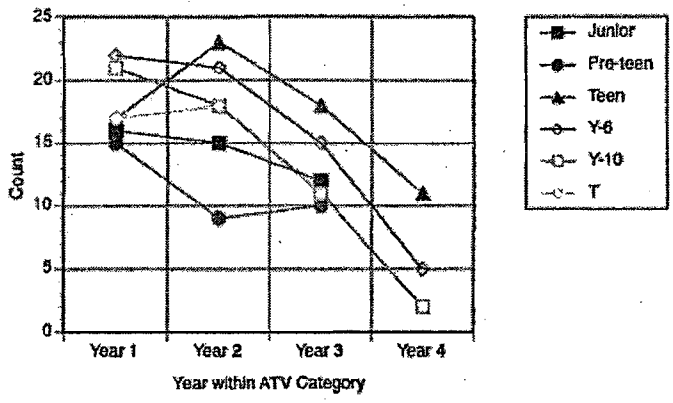


Figure 5.17. Trends in Number of Selections, by Category and Year Within Category

Figures 5.18 and 5.19 show the distribution of total selections (regardless of whether they were first or second) as a function of age. Some of the ages have fewer than 40 selections because the Adult ATV category was selected first and these Adult selections were not assigned to either the NPR or SVIA groups. These figures show the age-appropriate selections (AA), selections that were one category below the age appropriate selection (AA-1), selections that were one (AA+1) and two (AA+2) categories above the age appropriate selection, and the Adult category selections (Adult) only in those instances where the Adult category was selected second.

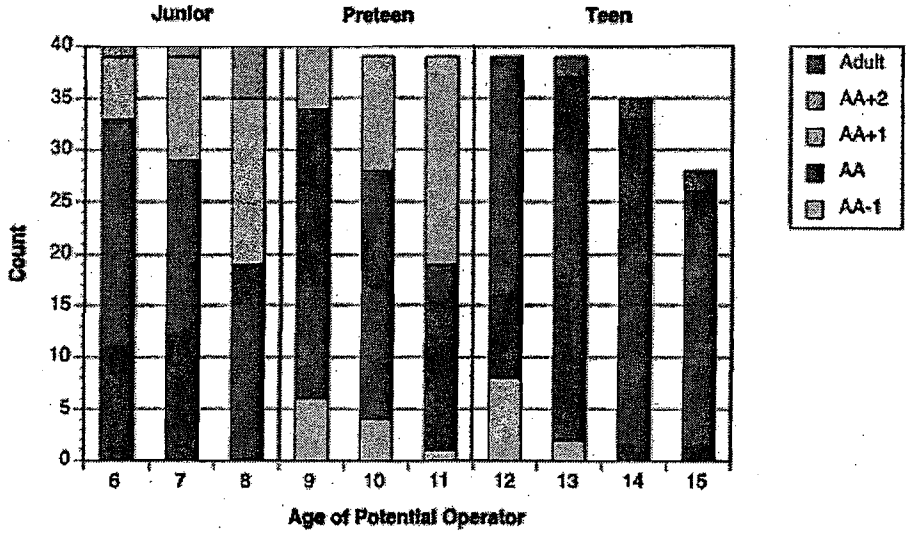


Figure 5.18. Distribution of Total Selections Within the NPR System, by Age

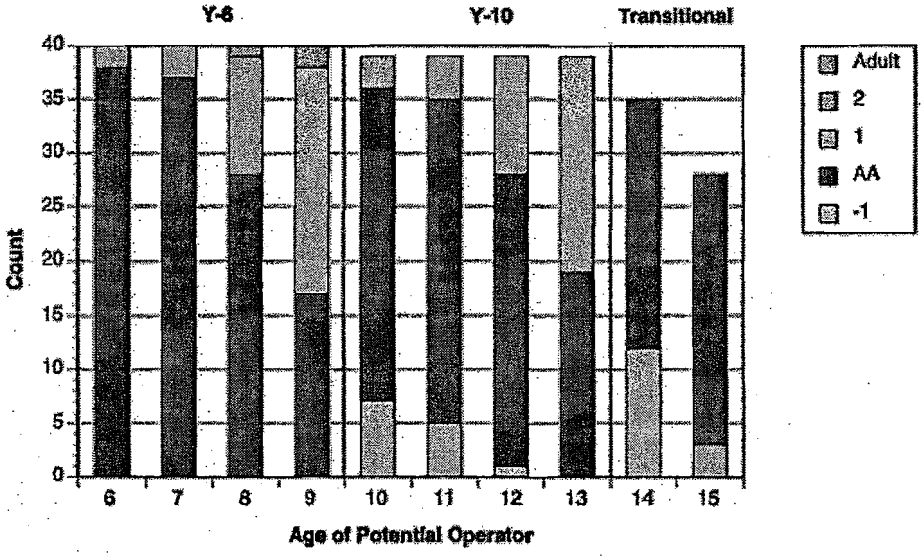


Figure 5.19. Distribution of Total Selections Within the ANSI/SVIA-1-200X-Proposed System, by Age

These figures show that the SVIA system had no Adult category (second) selections, whereas the system proposed in the NPR had six. In every one of these six instances, people selected the SVIA Transitional category first and their second selection (when limited to the CPSC offerings) was the Adult category. These six instances were spread across ages 13 (n = 2), 14 (n = 2) and 15 (n = 2) years. No one selected the Adult category from the SVIA system after having first selected a non-Adult model from the NPR offerings. Also, in seven of the 10 operator age years (ages 6, 7, 8, 10, 11, 14, and 15), the SVIA system had fewer high age-inappropriate selections than did the NPR system. Furthermore, some participants saw the Y-10 model as an acceptable option for 14 and 15 year olds, whereas none of the participants opted for the Preteen model for these ages.

Twenty (20) out of 399 (5%) of all first selections were for the Adult category. When the Adult category was selected first, participants were not asked for a second selection (since the Adult category spanned both the NPR and SVIA categories). The distribution of Adult (first) selections by age is shown in Figure 5.20. This figure shows that Adult selections were much more likely for 14 and 15 year olds than for younger children.

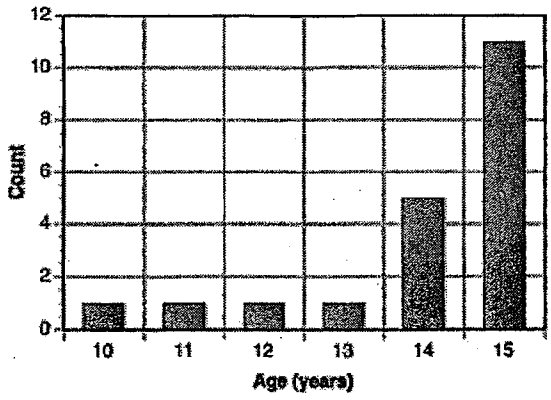


Figure 5.20 Selections in Which Adult Category Was First Choice, by Age

5.3.2.2.2. Purchasing an ATV for Multiple Operators

In the second purchase scenario, participants were asked to imagine that they would like to purchase one ATV for multiple people in their family who were interested in operating it (rather than just the one child, as in the previous scenario). Participants were asked to assume that they did not have another ATV and they were looking to buy just one. Participants were asked to respond to the related series of questions assuming that the people interested in riding included older children and adults, as well as a 12 year old, 13 year old, 14 year old, or 15 year old.

For each of these ages, 12 through 15, participants were first asked to select, of all the options on the chart, which category ATV they would be most likely to purchase; this category was recorded as their "first choice." Then participants were asked to select, from only the options in the opposite set, which category ATV they would be most likely to purchase; this category was recorded as their "second choice." Those participants who selected the Adult model as their first choice were not asked to select a second choice.

Of the 160 possible first choices, 49 (31%) were for the Adult category. This compares to 18 (11%) for the previous child-only scenario, when the same age range is considered. No second selection was made in these instances. Figure 5.21 shows the distribution of ages for these Adult-first selections. The Adult model was more likely to be selected first for 14 and 15 year olds than for younger children.

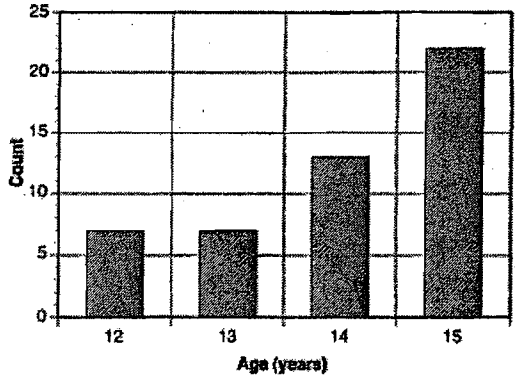


Figure 5.21. Selections in Which Adult Category Was First Choice, by Age

Of the remaining 111 first choices, the vast majority (n = 81; 73%) were for the SVIA system (78 of these were for the Transitional category and 3 were for the Y-10), while 30 (27%) were for the NPR Teen category. Figure 5.22 shows the distribution of first selections for the NPR and SVIA systems.

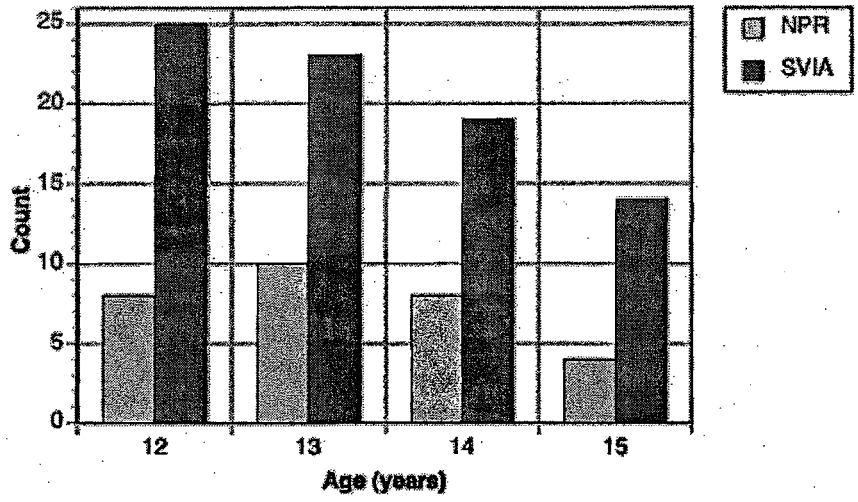


Figure 5.22. Distribution of NPR and SVIA First Selections

Of the 30 "second choice" selections for the SVIA categories, 10 were for the Y-10 and 20 were for the Transitional (no selections were for the adult category). In contrast, Figure 5.23 shows that for the NPR category, nineteen of these 81 "second choice" selections (23%) were for the Adult category rather than for one of the NPR non-Adult categories. The remaining second selections were for the Teen model.

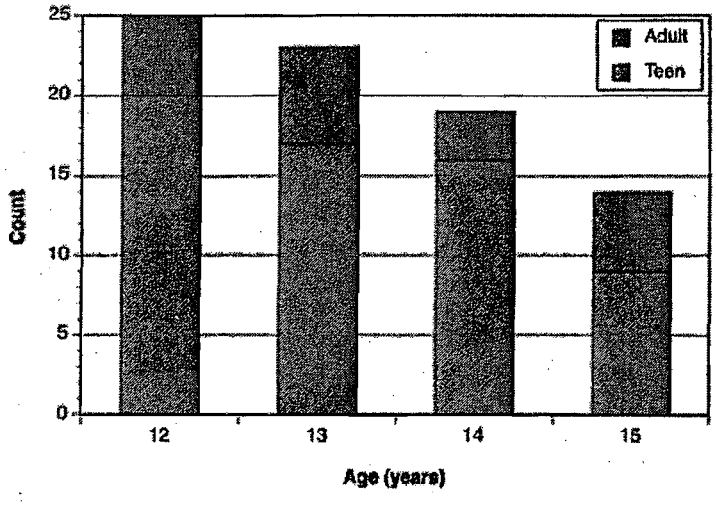


Figure 5.23. Distribution of NPR Second Selections

5.3.2.2.3. Categorization System Preferences

Participants were asked three questions about their general preferences for the CPSC and SVIA categories. These included:

Question	Question Label
"If you were in the market to purchase an ATV for your family to use and the people interested in riding it included a 12 to 15 year old as well as older children or adults, would you prefer to have the options in Set A or Set B?"	12-15 (family)
"If you had a child between ages 6 and 11, and were in the market to purchase an ATV just for him or her, would you prefer to have the options in Set A or Set B?"	6-11 (child)
"If you were in the market to purchase just one ATV for your own household, would you prefer to have the options in Set A or Set B?"	Household

The results from these three questions are shown in Figure 5.24. The preference for the SVIA system over the NPR system was significant with respect to households with a child age 12 to 15 ($p < .01$) and participants' own households ($p < .01$), but not statistically different with respect to purchases for a child age 6 to 11 ($p > .05$). Note that the NPR system was not preferred by a majority subjects for any of the questions presented.

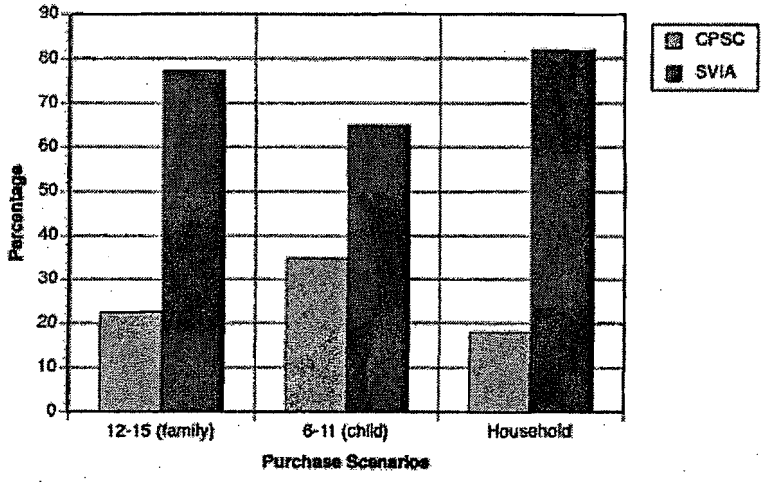
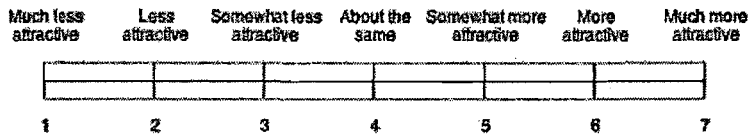


Figure 5.24. Preferences for Proposed Categorization Systems, by Purchase Scenario

5.3.2.2.4. ATV Speeds

The next series of questions pertained to ATV speeds for the Teen model. Four scenarios were given, similar to those given in the questions regarding ATV category preferences. The first and second of these scenarios were child-only scenarios. In the first scenario, participants were told to assume they had a 12 or 13 year old and were interested in purchasing an ATV just for him or her. In the second scenario, participants were told to assume they had a 14 or 15 year old and were interested in purchasing an ATV just for him or her. The third and fourth scenarios were multiple-user scenarios, in which participants were told to assume they would like to buy one ATV for multiple people in their family who were interested in riding it, and that they didn't have another ATV and that they were looking to buy just one. In the third scenario, participants were told to assume the people interested in operating included a 12 or 13 year old as well as older children or adults. In the fourth scenario, participants were told to assume the people interested in operating included a 14 or 15- year-old as well as older children or adults.

For each of these scenarios, participants were told that the Teen category (which was appropriate for the child under consideration) had a current maximum speed of 30 mph. They were then asked to rate how much more or less attractive the Teen category would be to purchase if it had a maximum speed of 15 or 22 mph instead of 30 mph or could be adjusted to have a maximum speed of 38 or 45 mph in addition to the current 30 mph. Each of the four speeds (15, 22, 38, and 45) was rated separately and the order of the four speed questions for all participants was 38 mph, 22 mph, 45 mph, and then 15 mph. In providing the rating, participants used the following scale:



These questions assessed people's ratings of attractiveness for ATV speeds in relation to three variables:

- Population of potential users—A child only vs. a child as well as older children or adults
- Age range of potential child user—12-13 years vs. 14-15 years of age
- Top speed of the ATV—15 mph vs. 22 mph vs. 38 mph vs. 45 mph (relative to 30 mph)

A 2 x 2 x 4 within-subjects analysis of variance (ANOVA) was performed on the data. The first two variables, population of potential users ($p > .05$) and age range of potential child user ($p > .05$), had no effect on the attractiveness of the ATV. The speed variable, itself, significantly affected people's ratings of the attractiveness of the ATV, $F(3, 114) = 31.6$, $p < .01$. Figure 5.25 shows the attractiveness ratings as a function of speed. The 38 and 45 mph speeds were significantly more attractive than the 15 and 22 mph speeds ($p < .01$). There was no significant difference between 38 and 45 mph ($p > .05$), but the 22 mph speed was significantly more attractive than the 15 mph speed ($p < .05$).

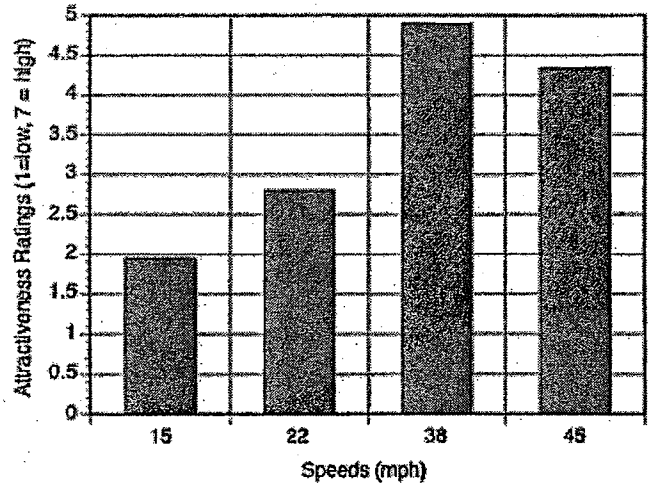


Figure 5.25. Attractiveness Ratings for Speeds (Relative to 30 mph)

Two of the two-way interactions, as well as the three-way interaction, were significant as well. The three-way interaction (which encompasses the two two-way interactions) is shown in Figure 5.26.

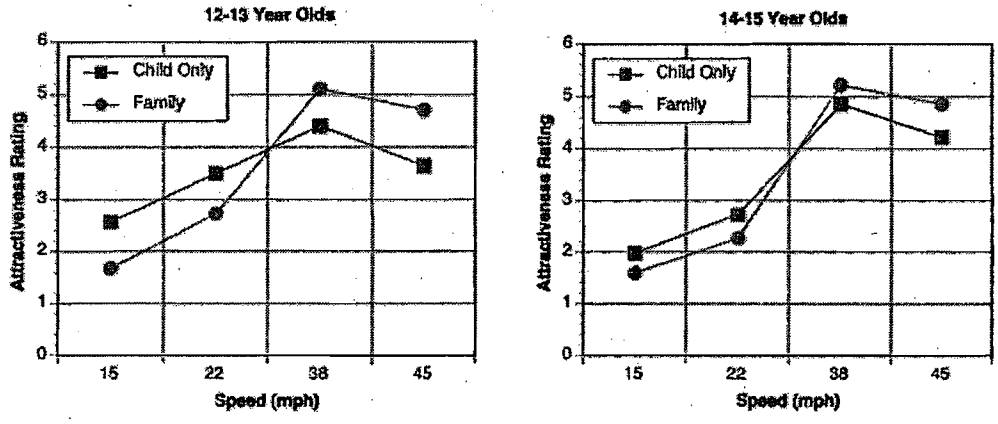


Table 5.26. Attractiveness Ratings by Speed, Population, and Age

This figure shows that the attractiveness of speeds, although following the pattern of the main effect for speed, is mediated by the other two variables to some extent. Specifically, for 12-13 year olds (left graph), lower speeds (15 and 22) were less attractive to the Family and more attractive for the Child Only, while faster speeds (38 and 45) were more attractive to the Family and less attractive for the Child Only. The same pattern existed for the 14-15 year olds (right graph), but this effect was less pronounced.

5.4. Study #1 - Focus Groups and Open-Ended Interviews

5.4.1. Introduction

To obtain more qualitative information about the opinions and preferences of ATV purchasers and users, as well as potential users and purchasers, two focus groups and one

set of open-ended interviews were conducted with participants from a variety of backgrounds.

5.4.2. Method

5.4.2.1. Focus Group #1

Seven individuals participated in the first focus group, conducted on October 5, 2006. Two of the participants were recruited via newspaper advertisements and flyers as previously described, and the remaining participants were recruited through word of mouth by one of the participants. The screening questions used were the same as those in the structured interviews discussed previously.

The seven participants included five females and two males with a mean age of 42.1 years and a range of ages 39 to 51 years. Two married couples were included. Levels of experience with ATVs among participants varied. One participant had never operated an ATV, one had operated an ATV once, two had operated ATVs between two and nine times, one had operated ATVs 10 to 20 times, and two had operated ATVs over 20 times. Three of the participants reported owning an ATV. Each of the participants had at least one child who had operated an ATV.

Participants were administered the structured interviews individually as previously described and, once completed, the participants convened immediately afterward for the focus group discussion.

The focus group moderators first discussed ground rules and expectations. Participants were told that there were no right or wrong answers and that the moderators were looking for different points of view. Participants were asked to stand by their opinions and not to let the group sway them. Participants were also told that they should feel free to make positive or negative comments about any of the discussion topics and that the moderators needed to hear from everyone during the course of the discussion. Participants were also reminded to talk one at a time and avoid side conversations.

The moderators posed a number of questions/topics for discussion regarding issues raised in the structured interviews. Selected visual stimuli from the structured interviews were projected onto a screen during the focus group, including a chart of the NPR and SVIA ATV categorization systems and the NPR Age Recommendation Warning Label (see Figure 5.27 and Figure 5.28).

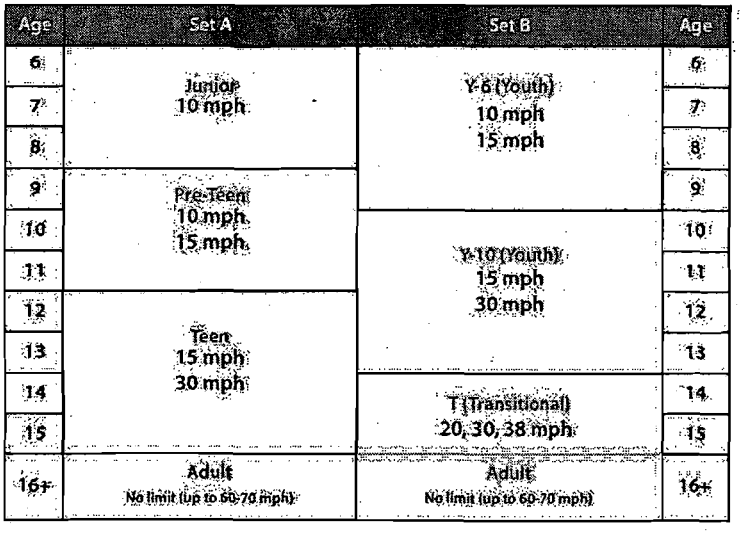


Figure 5.27. Chart of NPR (Set A) and SVIA (Set B) ATV Categorization Systems

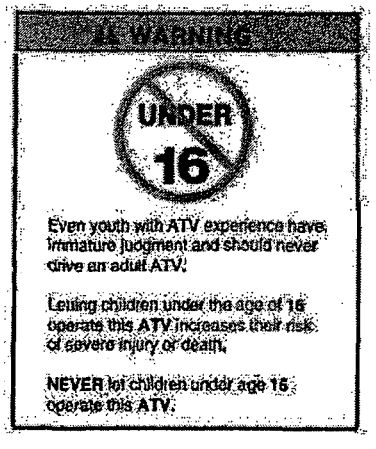


Figure 5.28. NPR Age Recommendation Warning Label

5.4.2.2. Focus Group #2

Four individuals participated in the second focus group, conducted on October 11, 2006. One participant was recruited via newspaper advertisements and flyers as previously described, and the other participants were recruited through word-of-mouth by that participant.

Participants consisted of three males and one female, with an average age of 55 years and a range of ages from 48 to 59 years. Three participants were grandparents and one was an uncle. All of the participants had operated ATVs with their relatives age 10 to 18. One married couple was included.

All of the participants had extensive experience operating ATVs and all currently owned ATVs. One participant was involved with the Off-Road Vehicle (ORV) Advisory Board to the Michigan Department of Natural Resources (DNR), one was active in the ATV Off-Road Club of Michigan and one was a former manager of an ATV dealership.

Participants were administered structured interviews individually as previously described, and then the participants convened for the focus group discussion.

The focus group procedure was similar to that in Focus Group #1. The focus group moderators first discussed ground rules and expectations (as above), and then posed a number of questions/topics for discussion regarding issues raised in the structured interviews. Paper copies of visual stimuli identical to those used in Focus Group #1 were provided.

5.4.2.3. Open-Ended Interviews

Open-ended interviews were conducted with four dealership employees at an ATV dealership in Southeast Michigan on October 19, 2006. All four participants worked in the sales department and all were male; no further demographic information was collected.

Each participant was given an overview of the NPR and SVIA ATV categories, using selected visual stimuli from the structured interviews, including a chart of the NPR and SVIA ATV categorization systems (see Figure 5.26). The moderator then posed a number of questions/topics for discussion regarding the participant's reactions to various aspects of the NPR and SVIA categorization systems. Each interview lasted approximately 10 minutes.

5.4.5. Results

Participants' reactions to various aspects of the NPR and SVIA ATV categorization systems were gathered during the first portion of each focus group and during the open-ended interviews. Participants' reactions to the Age Recommendation Warning Label were gathered during the second portion of each focus group.

5.4.5.1. Regarding Categorization Systems

All participants were asked which set of ATV categories they preferred overall (SVIA or NPR), and which set they thought would work better at keeping children off of Adult ATVs. Focus group participants were asked about their opinion of the Transitional category ATV, and their preference for two versus three Youth ATV categories. In addition to these general questions regarding the categorization systems, participants were asked about their opinions regarding ATV speeds.

5.4.5.1.1. Overall Categorization System Preference

All 11 focus group participants and 2 of 4 dealership employees interviewed preferred the set of options in the SVIA categorization system to those in the NPR categorization system. One dealership employee preferred the set of options in the NPR system, and one could not express a preference for either system.

Subsequent discussions, as described in the sections that follow, indicated that preferences for the SVIA system were related to several considerations, including preferences for greater adjustability in speeds, larger age ranges in the youth models, two versus three youth models, and the provision of the Transitional category ATV.

5.4.5.1.2 Perceived Effectiveness of Categorization Systems in Addressing Concerns Related to Youth Operation of Adult ATVs

All 11 focus group participants thought that the set of age groupings and speed recommendations in the SVIA classification system would better achieve the goal of "keeping children off of Adult ATVs" than would the set of age and speed groupings in the NPR classification system. Three out of four dealership employees interviewed thought that the speed and age range options available in the SVIA classification system would better accomplish the goal of getting children to ride Youth ATVs rather than Adult ATVs. One dealership employee thought that the set of options in the NPR classification system *"would be more attractive to shoppers."*

5.4.5.1.3 Opinions Regarding Transitional Category ATV

All participants in the first focus group indicated that they liked having a Transitional category ATV for ages 14 and 15. One participant commented that she liked the idea of the Transitional model providing for "more steps" in speed between youth and adult models. When asked if the Transitional model would still be appealing to 16, 17, or 18 year olds, general consensus in the first focus group was that the Transitional category would be much more appealing than would the Teen category. Regarding the Teen category, one participant said, *"[I think] the size of a machine that'd handle a 12 year old...to handle a 16 year old? It probably wouldn't work. [A 16 year old would be] maybe 6 feet tall? He's going to ride a machine that a 4 1/2-foot, 5-foot child's going to ride? I mean, he's going to be all up on the handlebars; it just wouldn't work."*

One participant in the second focus group commented that the reason he preferred the SVIA categorization system was because of the Transitional category. He discussed the idea of fit, and expressed the opinion that having 14 through 16 year olds on ill-fitting smaller machines could compromise safety. The other three participants in that focus group agreed.

The dealership employees did not express opinions specific to the Transitional category, apart from its speed; their comments are discussed in the section regarding ATV speeds.

5.4.5.1.4 Preference for Number of Youth Categories

Participants were asked if they preferred having two youth categories (Y-6 and Y-10) or three youth categories (Junior, Preteen, and Teen). All seven participants in the first focus group, and three out of four participants in the second focus group, preferred having two youth categories as compared to three youth categories.

One participant in the first focus group raised cost considerations as an issue with respect to his preference for two youth categories: *"I think the average person...isn't going to buy four different ATVs, where [in the SVIA system] they could basically buy two or three, and...adjust it to fit...the person that's riding it."* One of the dealership employees

expressed a similar preference and stated that the SVIA categories resulted in fewer models for parents to buy to keep their kids riding.

The former dealership manager who participated in the second focus group raised a practical concern related to the display of multiple youth models in dealerships. He favored fewer categories because he thought that dealers would be concerned about the amount of floor space that would be required to display and sell numerous additional youth models.

5.4.5.1.5. Opinions Related to ATV Speeds

Participants were asked about their overall speed preferences by categorization system and they were also asked to comment on the top speeds of various categories of ATVs within the two systems. Participants were then asked specifically about their thoughts on 30 mph as a top speed for the Teen category ATV and 38 mph as a top speed for the Transitional category ATV.

5.4.5.1.5.1. Overall speed preferences between categorization systems

Participants were asked which set of ATV categories they preferred based on speed alone. In the first focus group, six of seven participants preferred the set of categories in the SVIA system based on speed alone. In the second focus group, all four participants preferred the set of categories in the SVIA system based on speed alone.

Further discussion revealed that participants' preferences for the SVIA system were related to this system's greater adjustability in speeds. A participant from the first focus group said: *"It's just that you could adjust the speed of the vehicle to the maturity of the child riding it; you know, when he's you could start him out slow, and when he gets to become a better rider, you could turn the speed up where he's safe on it."* Another participant said that the SVIA system *"has a bigger range and they're more adjustable."* Two participants in the second focus group, when asked why they preferred the speeds in the SVIA system, responded by saying that the SVIA set had *"more flexibility."*

One dealership employee who preferred the SVIA system based on speed alone also expressed a preference for greater adjustability, stating, *"It comes down to the child. If you want to make something appeal to a consumer, it's got to be able to adjust to their child and they have to be able to get use out of it."* When asked about his preferences for speeds, another dealership employee stated that the speeds in the SVIA system were *"fine"* and that the speeds in the NPR system were *"too slow,"* but said that *"[it's a] judgment call for parents or the ATV owner."* One of the two remaining dealership employees stated that the speeds in the NPR system were *"bad,"* and the other did not express a clear preference.

5.4.5.1.5.2. Opinions regarding speeds on Junior, Y-6, Pre-Teen, and Y-10 categories

Participants in the two focus groups were asked their opinion about 10 mph as a top speed for the Junior ATV. Some participants appeared to be comfortable with this speed, but others thought it was too slow or preferred to have the adjustability available in the Y-6. One participant in the first focus group thought that this speed was *"perfect"* for 6, 7, and 8year-olds, and another participant responded in disagreement, saying *"I think a golf cart goes faster than 10 [mph]. In fact, I know it does."* For the most part,

participants in the first focus group liked the adjustability of the top speed for the Y-6 model. In the second focus group, two participants thought that a top speed of 10 mph for the Junior ATV was *"baloney."* The other two said that they would like to see an (adjustable) top speed of 20 mph or 25-30 mph for the Junior ATV.

Participants were also asked about their general reactions to the speeds in these four categories. Responses indicated a concern on the part of participants that children would get bored at some of the slower speeds. Some participants thought that a top speed of 15 mph for the Preteen ATV was too slow. One participant in the first focus group said: *"I would say an 11 year old who's been riding since he was six would be very bored at 15 miles an hour."* A dealership employee stated, *"When I was 9, I could ride a bicycle 20 miles an hour."* In the course of the discussion about speeds for these ATVs, one participant in the first focus group said, *"A 12 or 13 year old at 20 miles an hour? They'd be bored."* A participant in the second focus group also noted that an underpowered ATV is problematic because it may not provide for enough initial speed to climb hills or get through stretches of sandy trails without stalling.

5.4.5.1.5.3. Opinions regarding 30 mph as a top speed for different age groups

Participants were asked their opinions about 30 mph as a top speed for the Teen model ATV. Some thought this was an appropriate speed, but some thought that this speed would be too slow for some members of the 12-15 age range and that they would get bored.

Two of the seven participants in the first focus group thought that 30 mph would be too slow for a 14 or 15 year old. One participant from the second focus group commented that 30 mph would not be fast enough for a 15 year old: *"A 15 year old is going to be a big kid. [They're] not going to be satisfied. [They're] not going to be able to keep up."*

Three of four participants in the second focus group thought that 30 mph was *"just fine"* for 10 to 13 year olds; the remaining participant was concerned that a vehicle with a top speed of 30 mph for an 80- or 90-lb child would not go 30 mph with a 200-lb child.

All dealership employees commented that 30 mph would be too slow for some or all of the 12 to 15 year old age group. One said that he would like to see the Teen ATV have a top speed of 40 mph. Another thought 30 mph would be alright for backyards and trails and fast enough for a 13 year old, but that a 14 or 15 year old would "get bored" at 30 mph. One dealership employee said, *"That's way too slow. [On the other hand] it may be way too fast for a 12 year old just starting,"* This participant said that 30 mph would be alright for a 12 year old beginner if the 12 year old could start at 15 mph and work up to a higher speed.

Participants in the first focus group were asked if 30 mph would be an acceptable speed for adult riders. All participants said that it would not be acceptable to most adult riders.

5.4.5.1.5.4. Opinions regarding 38 mph for the Transitional category ATV

When asked what they thought of the top speed of 38 mph for 14 and 15 year olds operating the Transitional ATV, three of four participants in the second focus group stated that it was *"good"* or *"no problem."* The fourth participant suggested that it be raised to 40 mph.

Regarding use of the Transitional model by people 16 years and older, participants seemed to think that 38 mph would be a more acceptable top speed than would 30 mph. Participants in the first focus group were asked about the acceptability of a top speed of 38 mph for adults. All participants thought 38 mph would be enough speed for riding on trails. However one participant said, *"If you just ride very little, you know, or occasionally, it'd probably be alright, but if you started riding more, as an adult, it would be too slow."* A dealership employee interviewed said, *"38 [mph] would be fine for most parents."*

5.4.5.2. Regarding Age Recommendation Warning Label

In the second portion of Focus Groups #1 and #2, participants were shown the NPR Age Recommendation Warning Label, asked to read the label, and then asked for their opinions about it. In particular, participants were asked for their opinions about the first statement within the proposed label, *"Even youth with ATV experience have immature judgment and should never drive an adult ATV."*

Participants were first asked for their general reactions to the statement, for example, whether they agreed with it, and whether they thought it was true. Based on participants' responses, the moderator posed additional follow-up questions/topics for discussion.

Participants had an overall negative reaction to this statement. Almost all participants believed that the statement was not useful and several found it to be offensive or lacking in credibility.

In the first focus group, none of the participants believed that the statement was universally true for all children, though they all agreed with the general proposition that children under age 16 have less mature judgment than adults or people over age 16. Some participants in the first focus group thought the statement should be altered to remove the portion about youth "with ATV experience." One participant in this focus group volunteered, *"That whole top paragraph could be just taken off,"* and five of the other six participants agreed. The participant who did not agree said she thought the statement was "just a reminder to think of judgment."

Near the end of the first focus group, participants were asked their preference for whether or not this sentence should appear on the label, assuming that the goal was to "keep children off Adult ATVs." Six of seven participants indicated that the statement should not be included on the label; the remaining participant said she did not have a problem with the statement and that she considered it a reminder.

When asked, none of the participants in the first focus group thought this statement was valuable, and six out of seven said they would characterize their reactions to it as "generally negative." Four of the seven participants found the statement "offensive." Regarding the perception that the statement was offensive, one father said: *"I take it more offensive because my child has experience."* Another participant stated: *"I'm going to be telling my child she has immature judgment–it's demeaning."* Other participants in the first focus group said the statement was *"useless"* and *"pointless."*

In the second focus group, one participant thought the statement was "*out of line.*" All four participants in this focus group disagreed with the statement. When asked if they would prefer that the statement not appear on the label, three of four said it should not be