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ACCIDENTS, SAFETY, HUMAN ERROR

Paletz, Susannah B.F.; Bearman, Christopher; Orasanu, Judith; Holbrook, Jon. *Socializing the Human Factors Analysis and Classification System: Incorporating Social Psychological Phenomena Into a Human Factors Error Classification System. S. 435-445(11).*

Objective: The presence of social psychological pressures on pilot decision making was assessed using qualitative analyses of critical incident interviews. **Background:** Social psychological phenomena have long been known to influence attitudes and behavior but have not been highlighted in accident investigation models. **Method:** Using a critical incident method, 28 pilots who flew in Alaska were interviewed. The participants were asked to describe a situation involving weather when they were pilot in command and found their skills challenged. They were asked to describe the incident in detail but were not explicitly asked to identify social pressures. Pressures were extracted from transcripts in a bottom-up manner and then clustered into themes. **Results:** Of the 28 pilots, 16 described social psychological pressures on their decision making, specifically, informational social influence, the foot-in-the-door persuasion technique, normalization of deviance, and impression management and self-consistency motives. **Conclusion:** We believe accident and incident investigations can benefit from explicit inclusion of common social psychological pressures. **Application:** We recommend specific ways of incorporating these pressures into the Human Factors Analysis and Classification System.

- **Keywords:** AVIATION; CONFORMITY; SELF MOTIVES; ALASKA; PILOT DECISION MAKING; NATURALISTIC DECISION MAKING; COGNITIVE PROCESSES; PILOT; CREW BEHAVIOR; AEROSPACE SYSTEMS; SOCIAL PSYCHOLOGICAL PRESSURES; CRITICAL INCIDENT INVESTIGATIONS; ACCIDENT INVESTIGATION MODELS; INFORMATIONAL SOCIAL INFLUENCE; FOOT-IN-THE-DOOR PERSUASION TECHNIQUE; NORMALIZATION OF DEVIANCE; IMPRESSION MANAGEMENT; SELF-CONSISTENCY MOTIVES

Český abstrakt: Přítomnost sociálních psychologických tlaků (SPT) na rozhodování pilotů byla zjišťována za pomoci kvalitativních analýz pohovorů o kritických nehodách. Bylo zjištěno, že z 28 pilotů 16 popsalo SPT na jejich rozhodování, zvláště informační sociální vlivy, normalizační deviace a zvládnutí dojmů a motivy vlastní důslednosti. Výzkum nehod může těžit z explicitního zahrnutí SPT.

- psychologie sociální - letci - letectví - rozhodování - analýzy kvalitativní - nehody - nehody dopravní - vlivy - faktor lidský

AEROSPACE SYSTEMS

Wickens, Christopher D.; Rice, Stephen; Keller, David; Hutchins, Shaun; Hughes, Jamie; Clayton, Krisstal. *False Alerts in Air Traffic Control Conflict Alerting System : Is There a "Cry Wolf" Effect?* S. 446-462(17).

Objective: The aim is to establish the extent to which the high false-alarm rate of air traffic control midair conflict alerts is responsible for a "cry wolf" effect—where true alerts are not responded to and all alerts are delayed in their response. **Background:** Some aircraft collisions have been partly attributed to the cry wolf effect, and in other domains (health care and systems monitoring), there is a causal connection between false-alarm rate and cry wolf behavior. We hypothesized that a corresponding relationship exists in air traffic control (ATC). **Method:** Aircraft track and alert system behavior data surrounding 495 conflict alerts were analyzed to identify true and false alerts, trajectory type, and controller behavior. Forty-five percent of the alerts were false, ranging from 0.28 to 0.58. **Results:** Although centers with more false alerts contributed to more nonresponses, there was no evidence that these were nonresponses to true alerts or that response times were delayed in those centers. Instead, controllers showed desirable anticipatory behavior by issuing trajectory changes prior to the alert. Those trajectory pairs whose conflicts were more difficult to visualize induced more reliance on, and less compliance with, the alerting system. **Conclusion:** The high false-alarm rate does not appear to induce cry wolf behavior in the context of en route ATC conflict alerts. **Application:** There is no need to substantially modify conflict alert algorithms, but the conflict alert system may be modified to address difficult-to-visualize conflicts.

- **Keywords:** AIR TRAFFIC CONTROL ALERTS; AUTOMATION; PILOT BEHAVIOR; AEROSPACE SYSTEMS; FALSE ALERTS; MID-AIR CONFLICT ALERTING SYSTEM; CRY-WOLF EFFECT; AIR TRAFFIC CONTROLLER BEHAVIOR; DIFFICULT-TO-VISUALIZE CONFLICTS

AGING

Davidse, Ragnhild J.; Hagenzieker, Marjan P.; van Wolffelaar, Peter C.; Brouwer, Wiebo H. *Effects of In-Car Support on Mental Workload and Driving Performance of Older Drivers.* S. 463-476(14).

Objective: This study examined the extent to which driving performance of 10 older (70-88 years old) and 30 younger participants (30-50 years old) improves as a result of support by a driver assistance system. **Background:** Various studies have indicated that advanced driver assistance systems (ADAS) may provide tailored assistance for older drivers and thereby improve their safe mobility. **Method:** While drivers followed an urban route in a driving simulator, an ADAS provided them with prior knowledge on the next intersection. The system was evaluated in terms of effects on workload and safety performance. **Results:** Messages informing drivers about the right-of-way regulation, obstructed view of an intersection, and safe gaps to join or cross traffic streams led to safer driving performance. A message regarding an unexpected one-way street led to fewer route errors. In general, effects were the same for all age groups. Workload was not reduced by the support system. **Conclusion:** The evaluated support system shows promising effects for all age groups. Longer evaluation periods are needed to determine long-term effects. **Application:** The messages provided by the evaluated system are currently not provided by existing ADAS such as advanced cruise control and navigation systems, but they could possibly be added to them in the future.

- **Keywords:** AGING; IN-VEHICLE TECHNOLOGY; ROAD SAFETY; DRIVING BEHAVIOR; INTERSECTIONS; DRIVING SIMULATION; IN-CAR SUPPORT; MENTAL

WORKLOAD; DRIVING PERFORMANCE; OLDER DRIVERS; ADVANCED DRIVER ASSISTANCE SYSTEM (ADAS); ROUTE ERRORS

AUTOMATION, EXPERTISE SYSTEMS

Beck, Hall P.; McKinney, J. Bates; Dzindolet, Mary T.; Pierce, Linda G. *Effects of Human-Machine Competition on Intent Errors in a Target Detection Task. S. 477-486(10).*

Objective: This investigation examined the impact of human-machine competition (John Henry effects) on intent errors. John Henry effects, expressed as an unwillingness to use automation, were hypothesized to increase as a function of operators' personal investment in unaided performance. **Background:** Misuse and disuse often occur because operators (a) cannot determine if automation or a nonautomated alternative maximizes the likelihood of task success (appraisal errors) or (b) know the utilities of the options but disregard this information when deciding to use or not to use automation (intent errors). Although appraisal errors have been extensively studied, there is a paucity of information regarding the causes and prevention of intent errors. **Methods:** Operators were told how many errors they and an automated device made on a target detection task. Self-reliant operators (high personal investment) could depend on their performance or automation to identify a target. Other-reliant operators (low personal investment) could rely on another person or automation. **Results:** As predicted, self-reliance increased disuse and decreased misuse. **Conclusion:** When the disuse and misuse data are viewed together, they strongly support the supposition that personal investment in unaided performance affects the likelihood of John Henry effects and intent errors. **Application:** These results demonstrate the need for a model of operator decision making that takes into account intent as well as appraisal errors. Potential applications include developing interventions to counter the deleterious effects of human-machine competition and intent errors on automation usage decisions.

- **Keywords:** OPERATOR DECISION MAKING; AUTOMATION USAGE DECISIONS; JOHN HENRY EFFECTS; INTENT ERRORS; HUMAN-MACHINE COMPETITION; PERSONAL INVESTMENT; AUTOMATION DISUSE; AUTOMATION MISUSE

Český abstrakt: Předpokládalo se, že se efekty Johna Henryho (EJH), vyjádřené jako neochota používat automatizaci, zvýší jako funkce operátorovy osobní investice do výkonu bez cizí pomoci. Bylo zjištěno, že spoléhání se na sebe zvýšilo nepoužívání a snížilo zneužívání. Jsou-li tyto údaje hodnoceny společně, podporují předpoklad, že osobní investice do výkonu bez pomoci snižuje pravděpodobnost EJH a úmyslných omylů.

- psychologie práce - člověk - stroje - automatizace - operátoři - výkon pracovní - spolehlivost - chyby lidské

BIOMECHANICS, ANTHROPOMETRY, WORK PHYSIOLOGY

Wieszczyk, Stacie M.; Marklin, Richard W.; Sánchez, Héctor J. *Height of Industrial Hand Wheel Valves Affects Torque Exertion. S. 487-496(10).*

Objective: The aim of this study was to determine how height of a hand wheel affects maximum torque production and risk of injury to the shoulders and back of workers. **Background:** Workers in the processing, refinery, and energy generation industries manually open and close valves with hand wheels that require high torque. This task is physically strenuous and can lead to shoulder musculoskeletal disorders (MSDs). **Method:** Maximum torque exertions in the clockwise and counterclockwise directions at three heights (knee, chest, and overhead) were tested. **Results:** The torque production in the counterclockwise (left) direction was greater than that of the clockwise (right) direction (150.5 N·m vs. 141 N·m). This main effect was independent of valve height, as

there was no interaction between direction and valve height ($p = .686$). Participants exerted at least 10% greater torque at the overhead level than at the chest level (means of 153.2 N·m vs. 138.3 N·m). There was no difference in maximum torque between knee and overhead levels and between knee and chest levels. **Conclusion:** According to ergonomics principles, the risk of MSDs affecting the shoulder and trunk from turning valves should be lowest at chest height because the postures of the shoulder and trunk are at or near neutral. However, workers exerted greatest torque when the valve was located overhead. Whether valves located at overhead height, compared with chest height, present greater risk of MSDs to workers is not known. **Application:** Design engineers should avoid placing hand wheel valves at knee height or lower.

- **Keywords:** VALVE; HAND WHEEL; TORQUE; MUSCULOSKELETAL INJURIES; SHOULDER INJURIES; BIOMECHANICS; ANTHROPOMETRY; WORK PHYSIOLOGY

Český abstrakt: Cílem studia bylo stanovit, jak výška ručního kola působí na maximální tvorbu točivého momentu (TM) a riziko úrazu ramen a zad dělníků. Tato činnost může způsobit muskuloskeletální obtíže ramen (MSOR). Bylo zjištěno, že tvorba TM v levém směru byla vyšší než ve směru pravém. Tento hlavní efekt nezávisel na výšce ventilu a nebyla interakce mezi směrem a výškou ventilu.

- kola - moment točivý - ventily - ovládače ruční - nemoci pohybové - ramena - záda

Hsiao, Hongwei; Whitestone, Jennifer; Taylor, Stacie; Godby, Mary; Guan, Jinhua. *Harness Sizing and Strap Length Configurations*. S. 497-518(22).

Objective: This article describes the derivation of strap lengths and adjustments to fall-arrest harnesses and the development of harness size configurations. **Background:** Updated harness sizing configurations are needed to accommodate diverse populations in the current workforce. **Method:** Three-dimensional torso anthropometric data from 243 women and 258 men were incorporated into eight validated equations to develop a cost-effective harness sizing plan and to define strap lengths. **Results:** To meet strap adjustable range goals and to accommodate 95% to 98% of the estimated population, two sizing options were identified. **Conclusion:** Study outcomes suggest system improvement with three to four sizes for women and three to four sizes for men, on which the adjustment ranges of the torso straps were within 15 to 17 cm and within 20 to 23 cm on thigh and hip straps. **Application:** This research provided harness sizing and cut-length information for harness design to reduce the risk of worker injury that results from poor fit or improper size selection.

- **Keywords:** CONSTRUCTION; FALLS; TORSO SHAPE; ANTHROPOMETRY; SIZING CHART; PRINCIPAL COMPONENT ANALYSIS; BIOMECHANICS; SAFETY; STRAP LENGTH; FALL-ARREST HARNESS; HARNESS-SIZE CONFIGURATION; HARNESS SIZING; 3-DIMENSIONAL TORSO ANTHROPOMETRIC DATA; WORKER INJURY

Český abstrakt: Článek popisuje možnosti změn délky popruhů a přizpůsobení zachytných prostředků proti pádu z výšky, jakož i vývoj konfigurací rozměrů zachycovacích postrojů. K přizpůsobení OOPP 95% až 98% zkoumané populace byly identifikovány dvě volitelné možnosti dimenzování. Byly stanoveny tři až čtyři velikosti pro ženy a stejný počet pro muže. Tím lze snížit riziko způsobené špatnou volbou velikosti.

- pády osob - pády z výšky - OOPP - prostředky ochranné - rozměry - výstroj - popruhy - postroje zachycovací

COGNITIVE PROCESSES

Dornburg, Courtney C.; Stevens, Susan M.; Hendrickson, Stacey M.L.; Davidson, George S. *Improving Extreme-Scale Problem Solving : Assessing Electronic Brainstorming Effectiveness in an Industrial Setting. S. 519-527(9).*

Objective: An experiment was conducted to compare the effectiveness of individual versus group electronic brainstorming to address difficult, real-world challenges. **Background:** Although industrial reliance on electronic communications has become ubiquitous, empirical and theoretical understanding of the bounds of its effectiveness have been limited. Previous research using short-term laboratory experiments have engaged small groups of students in answering questions irrelevant to an industrial setting. The present experiment extends current findings beyond the laboratory to larger groups of real-world employees addressing organization-relevant challenges during the course of 4 days. **Methods:** Employees and contractors at a national laboratory participated, either in a group setting or individually, in an electronic brainstorm to pose solutions to a real-world problem. **Results:** The data demonstrate that (for this design) individuals perform at least as well as groups in producing quantity of electronic ideas, regardless of brainstorming duration. However, when judged with respect to quality along three dimensions (originality, feasibility, and effectiveness), the individuals significantly ($p < .05$) outperformed the group. **Conclusion:** When quality is used to benchmark success, these data indicate that work-relevant challenges are better solved by aggregating electronic individual responses rather than by electronically convening a group. **Application:** This research suggests that industrial reliance on electronic problem-solving groups should be tempered, and large nominal groups may be more appropriate corporate problem-solving vehicles.

- **Keywords:** ELECTRONIC COMMUNICATION; PROBLEM SOLVING; GROUP DYNAMICS; ELECTRONIC BRAINSTORMING; REAL-WORLD PROBLEMS; INDIVIDUAL VERSUS GROUP RESPONSE; COGNITIVE PROCESSES

Český abstrakt: Experiment vedl ke srovnání efektivnosti individuálního a skupinového elektronického brainstormingu (EB) k určení obtížných výzev v reálném světě. Zjištěné údaje ukazují, že jednotlivci jsou přinejmenším stejně tak dobří jako skupiny v tvorbě množství elektronických nápadů, bez ohledu na délku EB. V kvalitě však jednotlivci skupiny významně překonávají.

- psychologie práce - skupiny - elektronika - zlepšování - brainstorming

COMPUTER SYSTEMS

Branaghan, Russell J.; Sanchez, Christopher A. *Feedback Preferences and Impressions of Waiting. S. 528-538(11).*

Objective: Three experiments examined the effects of various feedback displays on user preference, apparent waiting durations, waiting time reasonableness, and other user experience measures. **Background:** User interface guidelines advocate keeping users informed about system status; however, the duration estimation literature shows that focusing on temporal information makes the wait seem longer. How can designers reconcile these issues? **Methods:** In three experiments, students chose movies from a simulated movie database and then were shown feedback displays (static, sequential dots, constant-rate progress bars, or variable-rate progress bars) for different durations. Users judged how reasonable the wait was and how long it lasted and then ranked their preference for the dialogs. **Results:** The pattern of preference results was different from duration-related judgments. Users preferred feedback that provided more information. On the other hand, when judging duration, users perceived simpler interfaces as being most reasonable. **Conclusion:** Different types of feedback are required for reducing perceived wait and increasing preference. Ratings of wait time reasonableness were

consistent with the attentional gate theory of prospective timing; attention-demanding activity caused the wait to seem less reasonable. Preference, on the other hand, requires keeping users informed about the progress of operations. **Application:** Users prefer more feedback rather than less, even if it makes the wait seem less reasonable. However, the constant progress bar performed at the top of both reasonableness and preference, keeping users informed without increasing arousal or focusing attention on temporal stimuli. Other options are also discussed to make duration perceptions more reasonable.

- **Keywords:** HUMAN-COMPUTER INTERACTION (HCI); USABILITY; FEEDBACK DISPLAYS; DURATION PERCEPTION; ATTENTIONAL GATE THEORY; PROSPECTIVE TIMING

Český abstrakt: Ve třech experimentech byl zkoumán účinek různých zpětnovazebních displejů na preference uživatelů, délku čekání, racionalitu čekací doby a další opatření ohledně uživatelských zkušeností. Bylo zjištěno, že model výsledků preference je odlišný od úsudků týkajících se délky. Uživatelé preferovali zpětnou vazbu poskytující více informací. U délky považovali jednodušší rozhraní jako nejracionálnější.

- vazba zpětná - displeje - internet - psychologie práce

SENSORY AND PERCEPTUAL PROCESSES

Ho, Cristy; Spence, Charles. *Using Peripersonal Warning Signals to Orient a Driver's Gaze*. S. 539-556(18).

responses following the presentation of spatial warning signals. **Background:** Recent cognitive neuroscience findings have shown that the human brain tends to treat stimuli occurring in peripersonal space as being somehow more behaviorally relevant and attention demanding than stimuli occurring in extrapersonal space. These brain mechanisms may be exploited in the design of warning signals. **Method:** Experiment 1 assessed the effectiveness of various different unisensory warning signals in eliciting a head-turning response to look at the potential source of danger requiring participants' immediate attention; Experiment 2 assessed the latency of a driver's responses to events occurring in the cued direction; Experiment 3 assessed the relative effectiveness of various warning signals in reorienting a person's gaze back to a central driving task while he or she was distracted by a secondary task. **Results:** The results show that participants initiated head-turning movements and made speeded discrimination or braking responses significantly more rapidly following the presentation of a close rear auditory warning signal than following the presentation of either a far frontal auditory warning signal, a vibrotactile warning signal presented to their waist, or a peripheral visual warning signal. **Conclusion:** These results support the claim that the introduction of peripersonal warning signals results in a significant performance advantage relative to traditionally designed warnings. **Application:** Warning systems that have been designed around the constraints of the human brain offer great potential in the future design of multisensory interfaces.

- **Keywords:** PERIPERSONAL SPACE; SPATIAL WARNING SIGNALS; HEAD-TURNING RESPONSE; MULTISENSORY INTERFACE DESIGN; DRIVER ATTENTION; HUMAN INFORMATION PROCESSING

Český abstrakt: Byly provedeny experimenty ke stanovení relativní rychlosti, s níž lidé mohou iniciovat zrychlené reakce hlavy následující po prezentaci prostorových výstražných signálů (VS). Bylo zjištěno, že účastníci iniciovali otáčivé pohyby hlavy a reagovali významně rychleji po zadním zvukovém VS než po čelním VS, vibrotaktilním signálu u pasu či periferním vizuálním signálu.

- řidiči - signály akustické - signály vizuální - výstrahy - rychlost

Moore, Kristin S.; Gomer, Joshua A.; Pagano, Christopher C.; Moore, D. DeWayne. Perception of Robot Passability With Direct Line of Sight and Teleoperation. S. 557-570(14).

Objective: To examine participants' abilities to judge the passability of robots through apertures in direct-line-of-sight (DLS) and teleoperation (TO) conditions, two experiments were conducted. **Background:** Past work has demonstrated that operators find it difficult to perceive aspects of remote environments during TO. For example, urban search-and-rescue operators have experienced difficulty judging whether a robot could pass through openings or over obstacles. Although previous research has discussed perceptual difficulties in TO, the differences between DLS and TO have not been quantified. **Method:** In the first experiment, participants judged the smallest passable aperture widths for three robot sizes for both DLS and TO conditions. In the second experiment, aperture widths were judged for three camera heights and two robot distances during TO. **Results:** In the DLS condition, participants produced similar judgments for the three robot sizes using dimensionless measurements. In the TO condition, participants' judgments were more variable and they judged smaller apertures as passable. **Conclusion:** Overall, participants judged apertures that were too small for the robot to pass as passable. This tendency was more pronounced in four instances: as robot size increased, during TO, when the camera was at its lowest height, and as distance between the robot and the aperture increased. **Application:** Judgments of passability help to quantify differences in perception between DLS and TO. These results will be useful in the design of training regimes for TO tasks. Increasing operator understanding of performance differences under varying conditions will lead them to be more accurate when making critical decisions in remote environments.

- **Keywords:** REMOTE PERCEPTION; AFFORDANCES; GENERALIZED ESTIMATING EQUATIONS; TELEOPERATION

Český abstrakt: Byly zkoušeny schopnosti posuzovat průchodnost robotů pomocí otvorů v přímé linii vidění (PLV) a teleoperace (TO). Za podmínek PLV účastníci vytvářeli podobné soudy pro tři velikosti robotů při užití bezrozměrového měření. V podmínce TO byly soudy rozmanitější a jako vhodné byly posuzovány menší otvory. Lze tím kvantifikovat rozdíly ve vnímání PLV a TO.

- roboti - operátoři - otvory

SURFACE TRANSPORTATION SYSTEMS

Horrey, William J.; Lesch, Mary F.; Kramer, Arthur F.; Melton, David F. Effects of a Computer-Based Training Module on Drivers' Willingness to Engage in Distracting Activities. S. 571-581(11).

Objective: This study examines the effect of a computer-based training module on drivers' attitudes and behaviors with respect to in-vehicle distraction. **Background:** Research findings on the negative performance implications of distraction call for the need to mitigate these adverse effects. **Method:** Forty drivers (ages 18 to 20 yrs) were divided into two groups: a training group that completed the module and a control group that viewed an unrelated video. The training promoted enhanced metacognitive skills (e.g., planning, monitoring) and strategies to deal with distraction. Measures of willingness to perform in-vehicle activities while driving (involving the use of short videos) were assessed before and after the intervention. Drivers also performed in-vehicle tasks while driving an instrumented vehicle on a closed test track. **Results:** Following the training, drivers in the training group showed a decline in their ratings of willingness to engage in distracting activities along with a corresponding increase in

perceived risk. In contrast, ratings from drivers in the control group did not change on any measures. Drivers in the training group were also more likely to perform in-vehicle tasks while the vehicle was parked compared with the control group—an obvious safety benefit. However, there was no observable benefit of training for drivers who performed the distracting tasks while the vehicle was in motion. **Conclusion:** There may be some promise to such a training approach. The implications for distraction and training are discussed. **Application:** Training general skills in dealing with potentially distracting in-vehicle tasks may help offset some of the negative outcomes associated with their use.

- **Keywords:** DRIVER DISTRACTION; IN-VEHICLE TASKS; YOUNG DRIVERS; TRAINING; METACOGNITIVE SKILLS AND STRATEGIES; DRIVER SAFETY

Český abstrakt: Byly zkoumány účinky modulu na řidičovo chování s ohledem na rozptýlení ve vozidle. Bylo zjištěno, že řidiči ve výcvikové skupině prokázali pokles ochoty k rozptylujícím činnostem spolu s odpovídajícím zvýšením vnímaného rizika a častěji prováděli úkoly ve vozidle, bylo-li zaparkováno, na rozdíl od kontrolní skupiny. Jsou diskutovány implikace pro rozptylování a výcvik.

- řidiči - chování bezpečné - chování nebezpečné - chování - výcvik

Hosking, Simon G.; Young, Kristie L.; Regan, Michael A. *The Effects of Text Messaging on Young Drivers*. S. 582-592(11).

Objective: This study investigated the effects of using a cell phone to retrieve and send text messages on the driving performance of young novice drivers. **Background:** Young drivers are particularly susceptible to driver distraction and have an increased risk of distraction-related crashes. Distractions from in-vehicle devices, particularly, those that require manual input, are known to cause decrements in driving performance. **Method:** Twenty young novice drivers used a cell phone to retrieve and send text messages while driving a simulator. **Results:** The amount of time that drivers spent not looking at the road when text messaging was up to ~400% greater than that recorded in baseline (no-text-messaging) conditions. Furthermore, drivers' variability in lane position increased up to ~50%, and missed lane changes increased 140%. There was also an increase of up to ~150% in drivers' variability in following distances to lead vehicles. **Conclusion:** Previous research has shown that the risk of crashing while dialing a handheld device, such as when text messaging and driving, is more than double that of conversing on a cell phone. The present study has identified the detrimental effects of text messaging on driving performance that may underlie such increased crash risk. **Application:** More effective road safety measures are needed to prevent and mitigate the adverse effects on driving performance of using cell phones to retrieve and send text messages.

- **Keywords:** DRIVER DISTRACTION; CELL PHONE; TEXT-MESSAGING; SMS; ROAD SAFETY; YOUNG DRIVERS; DRIVER BEHAVIOR; SURFACE TRANSPORTATION SYSTEMS; DUAL-TASK PERFORMANCE; ATTENTIONAL PROCESSES; ACCIDENTS, SAFETY AND HUMAN ERROR

Český abstrakt: Studie zkoumala účinky použití mobilu k příjmu a posílání textových zpráv (TZ) na výkon řízení u mladých začínajících řidičů. Bylo zjištěno, že čas, který řidiči tráví, aniž hledí na silnici, byl o cca 400% delší, než bylo zaznamenáno v podmínkách bez TZ. Výzkum prokázal, že riziko srážky při psaní TZ je dvojnásobné než při hovoru do mobilu.

- řidiči - telefony mobilní - bezpečnost silniční