Vicarious Viewing Time: Prolonged Response Latencies for Sexually Attractive Targets as a Function of Task- or Stimulus-Specific Processing

Roland Imhoff,[1, 3] Alexander F. Schmidt,[1] Simone Weiß,[1] Andrew W. Young,[2] and Rainer Banse[1]

[1] Department of Psychology, University of Bonn, Bonn, Germany

[2] Department of Psychology, University of York, York, UK

[3] To whom correspondence should be addressed at Social and Legal Psychology, Department of Psychology, University of Bonn, Kaiser-Karl-Ring 9, 53111 Bonn, Germany; e-mail: rimhoff@uni-bonn.de

ABSTRACT

The amount of time an individual spends gazing at images is longer if the depicted person is sexually appealing. Despite an increasing use of such response latencies as a diagnostic tool in applied forensic settings, the underlying processes that drive the seemingly robust effect of longer response latencies for sexually attractive targets remain unknown. In the current study, two alternative explanations are presented and tested using an adapted viewing time paradigm that disentangled task- and stimulus-specific processes. Hetero- and homosexual male participants were instructed to rate the sexual attractiveness of target persons differing in sex and sexual maturation from four experimentally assigned perspectives–heterosexual and homosexual perspectives for both sexes. This vicarious viewing time paradigm facilitated the estimation of the independent contributions of task (assigned perspective) and stimuli to viewing time effects. Results showed a large task-driven effect as well as a relatively smaller stimulus-based effect. This pattern suggests that, when viewing time measures are used for the assessment of sexual interest, it should be taken into consideration that response latency patterns can be biased by judging images from a selected perspective.

KEY WORDS: viewing time; sexual preference; indirect measure; cognitive processes; faking

INTRODUCTION

The time individuals spend gazing at other people they find sexually attractive is indicative of their sexual interest. This basic finding by Rosenzweig (1942) has been systematically exploited in applied settings to infer sexual preferences from response latencies. Importantly, these latencies do not only differ reliably between individuals with varying sexual orientation (i.e., hetero- vs. homosexual men; Imhoff et al., 2010; Israel & Strassberg, 2007; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996; Zamansky, 1956), but also produce specific patterns for individuals with differing sexual age preferences (e.g., individuals with sexual interest in adults vs. children) (Abel, 1995; Abel, Huffman, Warberg, & Holland, 1998; Abel, Jordan, Hand, Holland, & Phipps, 2001; Banse, Schmidt, & Clarbour, 2010; Glasgow, Osborne, & Croxen, 2003; Gress, 2005; Harris, Rice, Quinsey, & Chaplin, 1996).

Interest in viewing time effects can at least partly be attributed to the fact that utilizing response latencies has been identified as a promising direction in measuring especially deviant sexual preferences in forensic contexts (Thornton & Laws, 2009) without relying on participants' willingness and ability to accurately report information about their sexual interest (e.g., Kalmus & Beech, 2005). Several commercial screening instruments exist to indirectly assess sexual interest based (at least partially) on visual reaction times to stimuli depicting target persons of different sex and sexual maturation categories, such as the *Abel Assessment for Sexual Interest*™ (AASI; Abel et al., 2001) or *Affinity*™ (Glasgow et al., 2003). Despite increased use (according to the Abel screening website, AASI and its follow-up AASI-2 "have been used by over 2,000 clinicians throughout North America to evaluate more than 80,000 clients"), the underlying processes that drive the seemingly robust effect of longer response latencies for sexually attractive targets are still not entirely clear. It was the aim of the present article to fill this gap in the literature by testing two plausible accounts bearing implications for the diagnosticity of the viewing time assessment paradigm.

When individuals judge the sexual attractiveness of targets of different sexes and sexual maturation stages, the unobtrusively measured latencies peak at stimuli that belong to the sexually preferred target category (e.g., adult women for heterosexual men). Recent work by Imhoff et al. (2010) provided the first experimental tests of potential processes responsible for such “viewing time” effects.[1] By taking away the stimuli before participants could assign sexual attractiveness ratings, the researchers disentangled presentation time and response time. All pictures were presented for exactly 750 ms (Study 1) or 500 ms (Study 2). Only after each target stimuli image was removed, participants were shown a Likert scale to indicate how sexually attractive they thought the target had been. However, typical viewing time effects remained robust even under these conditions, i.e., heterosexual men spent longer time judging and assigning attractiveness ratings to sexually mature women than to any other group. Based on these results, two potential explanations for delayed responding to sexually attractive stimuli were ruled out. First, it seemed unlikely that the viewing time effects resulted from participants’ deliberate delay to keep the pleasant stimuli in sight because taking more time to give the response was not associated with more (potentially rewarding) time to gaze at the sexually preferred stimuli. Second, previous explanations based on attentional adhesion to sexually attractive stimuli did not fully explain viewing time effects. If sexually attractive stimuli led to longer response latencies because they automatically captured participants’ attention and distract

[1] Imhoff et al. (2010) showed that viewing time effects emerged even in the absence of the opportunity to actually watch the stimuli for longer. This exposes the term “viewing time” to the criticism that it is an inaccurate description of the effect at hand. However, due to its common use in research literature, we have decided to use the term throughout this article as the conventional technical term for the effect of prolonged latencies for sexually attractive targets (PRELSAT; Imhoff et al., 2010).

them from the rating task (or the Likert scale), the effect should have vanished when the sexually attractive stimuli were taken away.

Two different mechanisms remained as plausible explanations for the robust results that were observed even in absence of a stimulus while responding: (1) time-consuming schematic processes triggered by sexually attractive stimuli and (2) cognitive demands associated with the task of rating sexual attractiveness (Imhoff et al., 2010). More specifically, the first class of processes refers to all internal processes elicited by the stimulus per se, including but not restricted to activation of schematic scripts that may be rewarding or distracting, and therefore increasing response latencies (stimulus-specific processes). In contrast, the second class of processes was elicited by task demands (and not the stimulus per se), including the need to more thoroughly elaborate or scrutinize stimuli of certain categories (task-specific processes).

Stimulus-specific Processes

Watching sexually attractive stimuli affects the perceiver. For example, erotic stimuli elicit neuronal activities in brain areas commonly associated with the human reward system (e.g., Ishai, 2007; Karama et al., 2002; Mouras et al., 2003; Ponseti et al., 2006; Redouté et al., 2000; Safron et al., 2007; Stoléru et al., 1999). Visual stimuli of sexually attractive targets may also trigger schematic processes (e.g., evaluative, comparative, or associative processes, episodic memories, fantasizing). These (presumably automatically) triggered internal processes might distract participants from their primary task of judging the target person’s sexual attractiveness. Thus, it might be that the commonly observed increased latencies for trials in which stimuli of the sexually preferred category are presented are caused by parallel distracting processes triggered by the stimuli.

Task-specific Processes

In many studies, the unobtrusive measurement of the response time was accompanied by the task of rating the sexual attractiveness of the presented stimuli (e.g., Abel et al., 1998; Banse et al., 2010; Glasgow et al., 2003). It is conceivable that the required rating task that leads directly to different response time patterns is based on sexual preference. For instance, rating the sexual attractiveness or acceptability of a sexual partner requires classification of the stimulus in terms of age (or sexual maturation), sex, and attractiveness. Thus, to reach a decision regarding the sexual attractiveness or suitability of the target as a sexual partner, participants need to integrate (at least) these three criteria ("Is this person at an age appropriate for sexual attractiveness?", "Is this person of the sex I find attractive?", "Are the physical features sexually attractive to me?"). The process can be stopped as soon as one feature check results in a negative response. For all non-preferred targets, a negative outcome of any of the three checks is sufficient to give a low sexual attractiveness score or to reach the decision of unsuitability. Conversely, as long as the outcome of any feature check is positive, it is necessary to continue target scrutiny until all three criteria are evaluated. Such processing can account for longer response latencies for sexually attractive targets, as positive identification of sexual mates always requires the evaluation of all criteria, whereas negative decisions require the evaluation of fewer criteria. Although the identification of these features is sufficient to explain the effect of longest latencies for the preferred target category, it is conceivable that other task-dependent effects might additionally drive this viewing time effect. For the present article, we concentrated on the general role task effects might play in viewing time effects, as the existence of task effects (independent of their exact nature) has strong implications regarding the application of these measures in the field.

Disentangling Stimulus and Task Effects

The rationales outlined above are not necessarily mutually exclusive and it is possible that both processes contribute to the commonly observed viewing time effect. However, as the question of the underlying process has far-reaching implications regarding the possibility to (intentionally or naively) produce a non-authentic pattern of results, disentangling these two processes would be informative. If the presented stimuli automatically trigger internal processes, the delay of responses is difficult to overcome. To simulate a pattern different from one's own would require intentionally suppressing these processes or adapting the general response speed so that the trials with attractive targets will no longer stand out (e.g., by slowing down on trials with non-preferred stimuli). In contrast, the task-driven process described above has other implications. Simulating a different pattern would not require the inhibition of any automatic process, but merely a reinterpretation of the task by scrutinizing the features of the presented stimuli according to different criteria. By recoding the task from "Is this person sexually attractive to you?" to "Is this person a sexually attractive woman?", any person could produce a pattern typical for heterosexual men, independent of the rater's actual sexual orientation (as the detection of an attractive woman would require the rater to scrutinize the three criteria of sex, sexual maturation, and attractiveness, and a negative result on any of these criteria directly leads to a quicker negative responding).

We built on this logic to disentangle the two processes by creating a viewing time procedure in which participants were not instructed to judge the sexual attractiveness of the presented target for themselves but for a specific sexual interest group. As an example, homosexual and heterosexual individuals could be asked to rate all stimuli once from the perspective of a homosexual man and once from the perspective of a heterosexual man ("How sexually attractive is the presented person for a homosexual [heterosexual] man?"). This vicarious variant of the viewing time procedure allows for a dissociation of the two processes because they are associated with different predictions regarding response latencies. If only the stimulus-specific account is correct, target stimuli of the preferred category should always evoke the longest latencies, independent of the perspective: Female adults should always trigger the same automatic processes in heterosexual men, regardless of whether the heterosexual men judge the targets' sexual attractiveness from the perspective of homosexual or heterosexual men. In contrast, the task-specific process would predict that participants' sexual orientation per se will not play a role. As they are explicitly instructed to judge the sexual attractiveness of the presented stimuli for homosexual men, according to the feature-identification account outlined above, both homosexual and heterosexual participants will have to scrutinize the same criteria to reach an answer: Is the target person old enough? Is it male? Is it attractive? An early negation of any of these questions will result in reduced response latencies for homosexual as well as heterosexual participants.

The Present Research

We conducted a study with homosexual and heterosexual men to disentangle the two process accounts in a vicarious viewing time design. We have concentrated on men not only because the vast majority of sexual crimes are committed by men (Logan, 2008) but also because men generally show more specific and clear patterns of sexual responding to preferred vs. non-preferred stimuli on physiological and direct measures (Chivers, Rieger, Latty, & Bailey, 2004) as well as indirect measures (Imhoff, Schmidt, Bernhardt, Dierksmeier, & Banse, 2011; Imhoff et al., 2010). A standard viewing time experiment had to be completed by all participants from five different perspectives (for oneself, for heterosexual men, heterosexual women, homosexual men, and homosexual women). Previous research has shown that viewing effects remain robust under speeded conditions (Imhoff et al., 2010), so five additional speeded viewing time procedures were included such that each of the five procedures had participants rate targets' sexual attractiveness from a different perspective. As stimulus-based processes are assumed to be more automatic, we wanted to test whether these processes have a differentially large impact on standard viewing time procedures (those that allow any amount of time to judge sexual attractiveness) and speeded viewing time procedures (a task allowing a maximum of 1000 *ms* to judge sexual attractiveness on a binary scale) (see Imhoff et al., 2010; Experiments 3 and 4).

METHOD

Participants

A sample of 64 men (32 heterosexual, 32 homosexual, all self-identified), ranging in age from 19 to 48 years, $M = 34.0$, $SD = 7.2$, participated in a study on sexual attractiveness in exchange for the opportunity to win one out of six gift cards worth €25 (approximately $30) each for an online store. Participants were informed that the study wanted to explore mechanisms of perception and processing of sexually relevant cues and that also included a brief self-report on their own sexual fantasies and behavior. Eight participants were excluded based on high error numbers in the speeded tasks and contradictions between their self-categorization as either homosexual or heterosexual and their self-reported sexual fantasies and behaviors (see preliminary analyses below for details). The final sample thus consisted of 56 men (26 heterosexual, 30 homosexual).

Materials

The target stimuli were 80 computer-constructed photographs of male and female individuals taken from the Not Real People (NRP) picture set (Pacific Psychological Assessment Corporation, 2004; for examples, see Laws & Gress, 2004), which has been successfully employed in previous research (e.g., Banse et al., 2010; Imhoff et al., 2010) and which features male and female individuals belonging to five categories of sexual maturation (corresponding to categories defined by Tanner, 1978). The Tanner categories 1 to 3 depict prepubescent children of increasing physical maturity, Tanner category 4 post-pubescent adolescents, and Tanner category 5 young adults. These Tanner stages do not represent clear age ranges but stages of sexual maturation (Rosenbloom, & Tanner, 1998). All individuals were shown in bathing clothes of different colors. The picture set consisted of two subsets (40 pictures each; 4 images of each sex x sexual maturation combination). Subset A was used in the standard viewing time procedure and subset B in the speeded variants for half of the participants, and vice-versa for the other half. Order of response condition (standard first vs. speeded first) and assignment of picture set to task was counterbalanced across all participants. The entire study was run on a laptop computer with a 17-inch screen using Inquisit© experimental software. The relevant response keys were marked with red stickers.

Procedure

After obtaining informed consent and demographic information from the participants, they completed each of the two response conditions (standard vs. speeded) for the five different perspectives (counterbalanced across participants whether speeded or standard viewing time was completed first) on a computer. Between the two response conditions, sexual orientation was assessed with the Explicit Sexual Interest Questionnaire (ESIQ; Banse et al., 2010) as a plausibility check of participants' self-categorization as homosexual or heterosexual. After completing each of the viewing time paradigms from five different perspectives and completing the explicit questionnaire, participants were debriefed, offered the opportunity to leave their e-mail address in order participate in the raffle for the online store gift card, and thanked.

Design and Specific Hypotheses

The full design of the study was a 2 (Participant Sexual Orientation) x 2 (Response Condition: Standard vs. Speeded) x 5 (Perspectives) x 2 (Target Sex) x 5 (Target Sexual Maturation) mixed factorial design with the first factor a between-participants factor and all others varied within participants. As the self-perspectives merely served as a control task, they were analyzed separately. We expected to replicate the finding that stimuli of the sexually preferred category evoked the longest latencies. The critical analyses regarding the underlying processes were based on mixed model analyses of variance (ANOVA). If the viewing time effect was entirely due to the stimuli, sexually mature targets of participant’s preferred sex would evoke the longest latencies, independent of the task. This would practically mean that, for example, heterosexual men spend the longest amount of time rating the sexual attractiveness of adult women, irrespective of the perspective from which the stimuli have to be rated (e.g., “for homosexual men”). If the viewing time effect was entirely due to the task, sexually mature targets of the sex that is preferred by the respective assigned perspective would evoke the longest latencies. In contrast to the previously mentioned stimulus-effect, such a task-effect would be reflected in a result pattern showing that both homosexual and heterosexual men exhibit the longest latencies for rating the sexual attractiveness of adult men from a homosexual male or heterosexual female perspective and adult women from a heterosexual male or homosexual female perspective, irrespective of the participants’ own sexual orientation.

RESULTS

Preliminary Analyses

As a first step, each participant’s self-declared sexual orientation was compared with his ESIQ scores. As a result, four self-identified heterosexual men and one self-identified homosexual man were excluded from all further analyses. Their ESIQ scores indicated they were either equally interested in both sexes or had a preference that contradicted their self-declared preference. As a second exclusion criterion, we looked at performance in the speeded vicarious viewing time task to detect participants who did not comply with the instructions. Unlike the normal viewing time task in which the identification of a stimulus as a sexually attractive sexual partner for the self was purely subjective, the vicarious tasks have (at least to some degree) an objectively correct answer (i.e., correct rejections). We coded each identification of a stimulus of either the wrong sex (e.g., male targets for the heterosexual men perspective) or age (e.g., prepubescent targets) as a sexually attractive partner as a (false positive) error. Three participants who deviated substantially (> 2 *SD*) from the average frequency of errors ($M = 0.23$, $SD = 0.16$) were excluded. For the remaining 56 (26 heterosexual, 30 homosexual) participants, the ESIQ showed the expected results. Out of 10 possible sexual behaviors or fantasies involving women, heterosexual men reported an average of $M = 9.27$, $SD = 1.28$, whereas homosexual men reported $M = 3.20$, $SD = 2.35$, $F(1, 54) = 137.21$, $p < .001$. For sexual behaviors and fantasies regarding men, this pattern reversed: Heterosexual men reported an average of $M = 0.19$, $SD = 0.40$, and homosexual men an average of $M = 9.73$, $SD = 0.69$, $F(1, 54) = 3{,}823.96$, $p < .001$.

Self perspectives

First, we sought to replicate the standard viewing time effect with our sample and thus subjected the self-perspective to a 2 (Participant Sexual Orientation) x 2 (Target Sex) x 5 (Target Sexual Maturation) repeated measures ANOVA. Results show that the predicted standard viewing time effect emerged. The interaction of Participant Sexual Orientation and Target Sex, $F(1, 54) = 71.06$, $p < .001$, $\eta_p^2 = .57$, was further qualified by Target Maturation, $F(4, 51) =$

14.08, $p < .001$, $\eta_p^2 = .53$, indicating that the longer latencies for the preferred sex were particularly pronounced for sexually mature targets (Fig. 1).

Next, we tested whether the speeded condition introduced by Imhoff et al. (2010) would also replicate an identical effect. The latencies under speeded conditions with only a binary decision criterion (attractive potential sexual partner vs. not) were subjected to the same analyses as the latencies in the standard viewing time. Participants were instructed to respond within 1000 *ms*, and so all trials with latencies above 1000 *ms* were recoded to missing values (in total 4.2% of the trials). A 2 (Participant Sexual Orientation) x 2 (Target Sex) x 5 (Target Sexual Maturation) repeated measures ANOVA for the latencies in the self perspective replicated the viewing time effect under restricted conditions (Imhoff et al., 2010). A significant interaction of Target Sex and Participant Sexual Orientation, $F(1, 54) = 200.99$, $p < .001$, $\eta_p^2 = .79$, was further qualified by Target Sexual Maturation, $F(4, 51) = 11.36$, $p < .001$, $\eta_p^2 = .47$. Images of sexually mature women evoked the longest response latencies for heterosexual men, whereas images of sexually mature men evoked the longest viewing time for homosexual men (Fig. 2).

Vicarious Perspectives

Next, we conducted the critical analyses to investigate whether the prolonged latencies for sexually attractive targets can be better explained by automatic processes triggered by the stimuli or by mere task demands as triggered by the assigned perspectives. In an initial 2 (Participant Sexual Orientation: Homosexual vs. Heterosexual) x 2 (Response Condition: Standard vs. Speeded) x 2 (Perspective Sex: Male vs. Female) x 2 (Perspective Sexual Orientation: Heterosexual vs. Homosexual) x 2 (Target Sex: Male vs. Female) x 5 (Target Sexual Maturation: Tanner 1 to Tanner 5) ANOVA, task-specific and stimulus-specific effects would result in different interactions.

If it is only the stimuli that trigger the prolonged latencies, the task should be irrelevant, and results should replicate the Participant Sexual Orientation x Target Sex x Target Sexual Maturation interaction across all four perspectives. Heterosexual men would show the longest latencies when rating adult female targets, whereas homosexual men's latencies would peak for adult male targets. If, however, the specific demands of the task lead participants to scrutinize perspective-adequate targets for longer, we would expect a Perspective Sex x Perspective Sexual Orientation x Target Sex x Target Sexual Maturation interaction, independent of Participant Sexual Orientation. Both hetero- and homosexual men would show the longest latencies for adult men (Target Sexual Maturation x Target Sex) when they complete the task from a homosexual male or heterosexual female (Perspective Sex x Perspective Sexual Orientation) perspectives and for adult women if the heterosexual male or homosexual female perspectives were assigned. An interaction of either of these two effects with the Response Condition factor would indicate a differentially large effect contingent on whether participants complete the standard or the speeded response condition.

Results provided support for an influence of the assigned perspective as well as participants' sexual orientation. In support of a stimulus-based effect of Participant Sexual Orientation, the interaction of Participant Sexual Orientation x Target Sex x Target Sexual Maturation was significant, $F(4, 51) = 4.04$, $p < .001$, $\eta_p^2 = .24$. However, this interaction was further qualified by Response Condition, $F(4, 51) = 3.00$, $p < .001$, $\eta_p^2 = .19$, indicating that this effect was differently large for standard vs. speeded response conditions. In support of a task-driven effect of the assigned perspective, the interaction of Perspective Sex x Perspective Sexual Orientation x Target Sex x Target Sexual Maturation was significant, $F(4, 51) = 15.09$, $p < .001$, $\eta_p^2 = .54$, independent of Participant Sexual Orientation, $F < 1$. However, this interaction was further qualified by Response Condition, $F(4, 51) = 12.48$, $p < .001$, $\eta_p^2 = .50$, indicating that this effect was differently large for standard vs. speeded response conditions. The overall ANOVA thus provided evidence for strong task-specific effects but also to a lesser degree for stimulus-driven effects (of still substantial sizes) which were both qualified by an interaction with Response Condition.

In follow-up analyses, we conducted separate analyses for both response conditions. We employed two different analytical strategies. The first strategy was to concentrate on those targets hypothesized to produce meaningful differences between non-deviant heterosexual and homosexual men, i.e., post-pubescent targets. To this end, we averaged latencies for Tanner categories 4 and 5 for all conditions and subjected these latencies to 2 (Participant Sexual Orientation: Homosexual vs. Heterosexual) x 2 (Perspective Sex: Male vs. Female) x 2 (Perspective Sexual Orientation: Heterosexual vs. Homosexual) x 2 (Target Sex: Male vs. Female) ANOVAs for both response conditions separately. Stimulus-specific effects would be indicated by Participant Sexual Orientation x Target Sex interactions whereas task-specific effects would result in significant interactions of Perspective Sex x Perspective Sexual Orientation x Target Sex.

In the *standard response condition*, the analysis yielded a significant interaction indicative of a task-specific effect, (Perspective Sex x Perspective Sexual Orientation x Target Sex, $\eta_p^2 = .69$; see Table 1 for full details). The only effect contingent on Participant Sexual Orientation was an interaction with Target Sex, as heterosexual participants had longer latencies for post-pubescent female target, $\eta_p^2 = .10$, ($M = 1930$, $SD = 525$) than post-pubescent male target ($M = 1751$, $SD = 460$). Homosexual participants showed the reversed pattern with longer latencies for male (*M* = 1989, *SD* = 457) vs. female targets (*M* = 1936, *SD* = 544). Thus, on a smaller scale, there was also an indication of a stimulus-specific effect.

In the *speeded response condition*, a similar pattern appeared. Large task-specific effects were indicated by an interaction of Perspective Sex x Perspective Sexual Orientation x Target Sex, $\eta_p^2 = .61$ (see Table 2 for full details). However, the stimulus-specific interaction of Target Sex and Participant Sexual Orientation was also obtained, $\eta_p^2 = .23$. In line with expectations, heterosexual men had longer latencies for female (*M* = 552, *SD* = 90) compared to male (*M* = 541, *SD* = 91) targets, whereas for homosexual men this pattern reversed as indicated by longer latencies for male (*M* = 616, *SD* = 70) vs. female (*M* = 577, *SD* = 64) targets. Inspecting the different effect sizes for both conditions, it seems that the task effect was somewhat more pronounced in the *standard response condition* where the stimulus-specific effect was somewhat larger under *speeded response conditions*. However, in both response conditions, stimulus effects were still substantial ($\eta_p^2 \geq .10$).

As a second analytical strategy, we looked at each of the eight vicarious viewing time tasks (four assigned perspectives per response condition) separately. In these analyses, we re-included the pre-pubescent stimuli to see whether in each of these separately analyzed conditions heterosexual and homosexual men would still produce meaningfully different results. We thus conducted separate 2 (Participant Sexual Orientation) x 2 (Target Sex: Male vs. Female) x 5 (Target Sexual Maturation: Tanner 1 to Tanner 5) ANOVAs for all eight combination of assigned perspective and response condition. In each of these analyses, a Target Sex by Target Sexual maturation interaction independent of Participant Sexual Orientation would speak to task-specific effects whereas an interaction with Participants Sexual Orientation would suggest an influence of the stimuli beyond mere task demands corroborating that even vicarious perspectives could still differentiate between homosexual and heterosexual men.

For the *standard response condition*, for each separate assigned perspective, the interaction of target sex and target sexual maturation was significant, *p*s $< .001$, η_p^2 between .31 and .45 (Table 3). Importantly, they were never qualified by an interaction with Participant Sexual Orientation, *p*s $> .13$, speaking to strong task-effects in the absence of any relevant stimulus-specific effects (see Fig. 3 for means). For *speeded responses,* the results were somewhat more complex. Although the interaction of Target Sex and Target Sexual Maturation was significant for three of the four perspectives, *p*s $< .005$, η_p^2 between .25 and .35, it did not reach conventional significance for the heterosexual female perspective, $F(4, 51) = 2.23$, $p = .07$, $\eta_p^2 = .15$. Results indicative of stimulus-specific processes were only obtained for the heterosexual male perspective as shown by the significant three-way interaction of Participant Sexual Orientation, Target Sex and Target Sexual Maturation, $F(4, 51) = 4.85$, $p < .005$, $\eta_p^2 = .28$. Means (Fig. 4) corroborate that, particularly in this perspective, homosexual men showed longer latencies for stimuli depicting adult men than could be expected on the basis of mere task effects.

To directly estimate the relevant effects, we moved from the fine-grained analysis based on five Tanner stages to a comparison of prepubescent vs. postpubescent stimuli for each target sex. Table 5 provides mean latencies, SD, the results of simple tests and effects sizes separately for heterosexual and homosexual men for the four perspectives under *standard response conditions*. Positive effect sizes reflect longer latencies for postpubescent female vs. postpubescent male stimuli and negative effect sizes reflect longer latencies for postpubescent male stimuli. As can be seen, the direction of these generally large effects was fully dependent on the assigned perspective, once more supporting the strong influence of task effects. The same information for the *speeded response conditions* (Table 6) depicts a similar picture with the response latencies of homosexual men for the heterosexual male perspective being one noteworthy exception. Here, a lack of any effect indicates that postpubescent male stimuli evoked as long latencies as post-pubescent female stimuli.

Returning to the initial overall analysis in light of the follow-up analyses suggests that task-effects can be found on any level of analysis and seem to be outperforming the stimulus-effects. The qualifying interaction of Perspective Sex x Perspective Sexual Orientation x Target Sex x Target Sexual Maturation x Response Condition seems to suggest that such effects are somewhat more pronounced under standard vs. speeded response conditions. For stimulus-specific effects it has to be noted that despite an overall tendency of longer latencies for the preferred target sex, this effect was generally weaker and could not be detected on the level of separately analyzed conditions. The qualifying interaction of Participant Sexual Orientation x Target Sex x Target Sexual Maturation x Response Condition indicates that stimulus-specific effects are larger under speeded vs. response conditions.

DISCUSSION

The results for both tasks suggested that longer latencies for adults of the preferred sex were primarily a function of the assigned perspective, not participants' actual sexual orientation. In other words, the task of rating how sexually attractive a target would be to heterosexual men took longest when the targets were adult females, whether participants were hetero- or homosexual. This is at odds with the notion that viewing time measures primarily tap into automatic processes associated with sexual interest rather than task-dependent response strategies. However, in both variants, there were also substantial significant effects of the stimuli, independent of perspectives. These effects can be considered diagnostic in the sense that they seem to be task-independent, automatic processes triggered by the (either sexually relevant or irrelevant) stimuli.

Viewing time effects of prolonged latencies for sexually attractive targets were commonly obtained by asking participants to rate the sexual attractiveness of stimuli while their viewing time was unobtrusively measured. Our results strongly suggest that the nature of this secondary task (rating of sexual attractiveness from a specific perspective) predominantly affected response latencies. In addition, we also found evidence for (much smaller) stimulus-driven effects. Thus, in a classical design, the frequently found longest latencies for the preferred category were likely to be the result of both the task demands and, to a lesser extent, the automatic processes triggered by the stimuli running in the same direction. These additive effects under the constraint that the participant performed the task according to the implied self-perspective may help explain the superior ability of viewing time tasks to differentiate between groups of contrasting sexual preference (Areas-Under-the-Curves (*AUC*s) between .80 and 1.00; Imhoff et al., 2010) compared to other indirect measures assumed to tap into automatic processes triggered by sexually preferred stimuli, such as the Choice Reaction Time (*AUC*s between .60 and .83; Santtila et al., 2009).

However, these confounding task-driven processes may not come without costs. The task-driven effect has strong implications regarding the paradigm's robustness and susceptibility to faking. In particular, the task-specific effect is only diagnostic to the degree that the task is completed in a self-referential way: Merely putting oneself in somebody else's shoes will produce a pattern of the other perspective that possibly overrides the truly diagnostic stimulus-driven effect, even without being explicitly informed about the underlying rationale. This makes viewing time procedures vulnerable to faking attempts, a problem other indirect measures of sexual preference-like penile plethysmography (PPG)-are also plagued with (e.g., Kaine, Crim, & Mersereau, 1988; Konopanky & Konopansky, 2000).

The data presented here did not address the question which kind of task-effect in detail underlies the observed latency patterns. Although this question was possibly less relevant from an applied point of view, it may be of interest to researchers seeking to understand the processes that lead to viewing time effects. As one possible explanation, we have proposed that it is necessary to scrutinize more features to reach a positive decision regarding a target individual's sexual attractiveness than to conclude that a target is sexually unattractive. The process can be stopped as soon as one feature check results in a negative response (i.e., wrong sex, too young, not attractive). Conversely, as long as the outcome of these checks is positive, it is necessary to continue with target scrutiny until all three criteria are evaluated. Although this rationale offers a plausible explanation for the general viewing time effect, vicarious viewing time effects, and the linear effect of Target Age even for non-preferred sex (see Imhoff et al., 2010), it is important to note that this process was not tested directly in the present study. The current data suggest a comparatively large role of task effects, but it is conceivable that the underlying cognitive operations are of a different nature than those we have suggested. It was beyond the scope of the present study to directly test the actual nature of the underlying cognitive process, but future research might seek to further elucidate these cognitive tasks.

Nevertheless, the present research bears meaningful implications for the applied field. The task-driven effects pose a potential threat to the diagnostic validity of viewing time paradigms irrespective of their exact nature. At a minimum, the results caution against the interpretation of viewing time effects as inherently caused by automatic processes outside of conscious control. Participants' compliance in completing the secondary rating task from their own self-relevant perspective is thus of crucial importance. As long as participants comply with the instructions to rate the targets according to how subjectively sexually attractive they are, the measure will produce meaningful results, as indicated by its rather good ability to differentiate deviant from non-deviant samples (e.g., Banse et al., 2010). On the contrary, whenever participants complete the task from a perspective other than their own, latency patterns in standard viewing time paradigms will be nondiagnostic. Speeded variants of viewing time (Imhoff et al., 2010) are likely to capture more diagnostic variance–as shown with the relatively larger effect-sizes for the stimulus-effect–but even these effects may be overridden by task-specific effects. Nevertheless, this corroborates to the underlying rationale of enhancing automatic effects through speeding up the task.

Potentially, vicarious viewing time procedures may serve as an additional diagnostic tool. With an experimental design as used in the present study, the task-specific effect could indicate general compliance, whereas the stimulus-specific effect would indicate sexual interest as such. Future research should further develop variants that maximize the ability to capture the meaningful (i.e., stimulus-driven) variance that undoubtedly is hidden in viewing time latencies (as shown by the substantial stimulus-specific effects).

REFERENCES

Abel, G. G. (1995). *The Abel Assessment of Interest in Paraphilias*. Atlanta, GA: Abel Screening, Inc.

Abel, G. G., Huffman, J., Warberg, B., & Holland, C. L. (1998). Visual reaction time and plethysmography as measures of sexual interest in child molesters. *Sexual Abuse: A Journal of Research and Treatment, 10,* 81-95. doi:10.1177/107906329801000202

Abel, G. G., Jordan, A., Hand, C. G., Holland, L. A., & Phipps, A. (2001). Classification models of child molesters utilising the Abel Assessment for Sexual Interest™. *Child Abuse and Neglect, 25,* 703-718. doi:10.1016/S0145-2134(01)00227-7

Banse, R., Schmidt, A. F., & Clarbour, J. (2010). Indirect measures of sexual interest in child sex offenders: A multimethod approach. *Criminal Justice and Behavior, 37,* 319-335. *doi:10.1177/0093854809357598*

Chivers, M. L., Rieger, G., Latty, E., & Bailey, J. M. (2004). A sex difference in the specificity of sexual arousal. *Psychological Science, 15*, 736–744.

Glasgow, D. V., Osborne, A., & Croxen, J. (2003). An assessment tool for investigating paedophile sexual interest using viewing time: An application of single case methodology. *British Journal of Learning Disabilities, 31*, 96-102. doi:10.1046/j.1468-3156.2003.00180.x

Gress, L. (2005). Viewing time and sexual interest: Another piece in the puzzle. *Journal of Sexual Aggression*, *11*, 117-125. doi:10.1080/13552600500063666

Harris, G. T., Rice, M. E., Quinsey, V. L., & Chaplin, T. C. (1996). Viewing time as a measure of sexual interest among child molesters and heterosexual men. *Behaviour Research and Therapy, 34,* 389-394. doi:10.1016/0005-7967(95)00070-4

Imhoff, R., Schmidt, A. F., Bernhardt, J., Dierksmeier, A., & Banse, R. (2011). An inkblot for sexual preference: A semantic variant of the Affect Misattribution Procedure. *Cognition & Emotion, 25*, 676-690. doi:10.1080/02699931.2010.508260

Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010) Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior, 39*, 1275-1288.

Ishai, A. (2007). Sex, beauty and the orbifrontal cortex. *International Journal of Psychophysiology*, *63*, 181-185. doi:10.1016/j.ijpsycho.2006.03.010

Israel, E., & Strassberg, D. S. (2007). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior, 38*, 551-558. doi:10.1007/s10508-007-9246-4

Kaine, A., Crim, M., & Mersereau, G. (1988). Faking sexual preference. *Canadian Journal of Psychiatry, 33*, 379-385.

Kalmus, E., & Beech, A. R. (2005). Forensic assessments of sexual interest: A review. *Aggression and Violent Behavior, 10,* 193-217. doi:10.1016/j.avb.2003.12.002

Karama, S., Lecours, A. R., Leroux, J.-M., Bourgoin, P., Beaudoin, G., Joubert, S., et al. (2002). Areas of brain activation in males and females during viewing of erotic film excerpts. *Human Brain Mapping*, *16*, 1-13. doi:10.1002/hbm.10014

Konopansky, R. J., & Konopansky, A. W. B. (2000). Remaking penile plethysmography. In D. R. Laws, S. M. Hudson, & T. Ward (Eds.), *Remaking relapse prevention with sex offenders* (pp. 257–284). Thousand Oaks, CA: Sage.

Laws, D. R., & Gress, C. L. Z. (2004). Seeing things differently: The viewing time alternative to penile plethysmography. *Legal and Criminal Psychology, 9*, 183-196.

Logan, C. (2008). Sexual deviance in females: Psychopathology and theory. In D. R. Laws & W. T. O'Donohue (Eds.), *Sexual deviance: Theory, assessment, and treatment* (pp. 486-507). New York: Guilford Press.

Mouras, H., Stoléru, S., Bittoun, J., Glutron, D., Pélégrini-Issac, M. Paradis, A.-L., et al. (2003). Brain processing of visual sexual stimuli in healthy men: A functional magnetic resonance imagining study. *NeuroImage*, *20*, 855-869. doi:10.1016/S1053-8119(03)00408-7

Pacific Psychological Assessment Cooperation. (2004). *The Not-Real People Stimulus Set for assessment of sexual interest*. Victoria, BC, Canada: PPAC.

Ponseti, J., Bosinski, H. A., Wolff, S., Peller, M., Jansen, O., Mehdorn, H. M., et al. (2006). A functional endophenotype for sexual orientation in humans. *NeuroImage*, *23*, 825-833. doi:10.1016/j.neuroimage.2006.08.002

Quinsey, V., Ketsetzis, M., Earls, C., & Karamanouikan, A. (1996). Viewing time as a measure of sexual interest. *Ethology and Sociobiology*, *17*, 341-354. doi:10.1016/S0162-3095(96)00060-X

Redouté, J., Stoléru, S., Grégoire, M.-C., Costes, N., Cinotti, L., Lavenne, F., et al. (2000). Brain processing of visual sexual stimuli in human males. *Human Brain Mapping*, *11*, 162-177.

Rosenbloom, A. L., & Tanner, J. M. (1998). Misuse of tanner puberty stages to estimate chronologic age. *Pediatrics, 102,* 1494. doi:10.1542/peds.102.6.1494

Rosenzweig, S. (1942). The photoscope as an objective device for evaluating sexual interest. *Psychosomatic Medicine, 4,* 150-157.

Safron, A., Barch, B., Bailey, J. M., Gitelman, D. R., Parrish, T. B., & Reber, P. J. (2007). Neural correlates of sexual arousal in homosexual and heterosexual men. *Behavioral Neuroscience*, *121*, 237-248. doi:10.1037/0735-7044.121.2.237

Santtila, P., Mokros, A., Viljanen, K., Koivisto, M., Sandnabba, N. K., Zappala, A., et al. (2009). Assessment of sexual interest using a choice reaction time task and priming: A feasibility study. *Legal and Criminological Psychology, 14*, 65-82. doi:10.1348/135532507X267040

Stoléru, S., Grégoire, M.-C., Gérard, D., Decety, J., Lafarge, E., Cinotti, L., et al. (1999). Neuroanatomical correlates of visually evoked sexual arousal in human males. *Archives of Sexual Behavior*, *28*, 1-21. doi:10.1023/A:1018733420467

Tanner, J. (1978). *Fetus into man: Physical growth from conception to maturity.* Cambridge, MA: Harvard University Press.

Thornton, D., & Laws, D. R. (2009). *Cognitive approaches to the assessment of sexual interest in sex offenders.* New York: Wiley. doi:10.1002/9780470747551

Zamansky, H. S. (1956). A technique for measuring homosexual tendencies. *Journal of Personality, 24,* 436-448. doi:10.1111/j.1467-6494.1956.tb01280.x

Table 1

Analysis of Variance (ANOVA) for Response Latencies as a Function of Participant Sexual Orientation, Target Sex, Perspective Sex, Perspective Sexual Orientation for Post-pubescent targets under standard conditions

Source	*df*	*F*	η_p^2	*p*
		Between subjects		
Participant Sexual Orientation (SO)	1	0.96	.02	.33
SO within-group error	54	(1,740,557.13)		
		Within subjects		
Target Sex (TS)	1	1.82	.03	.18
Perspective Sexual Orientation (PSO)	1	< 1	.02	.34
Perspective Sex (PS)	1	17.33**	.24	.00
TS x PSO	1	8.47**	.14	.01
TS x PS	1	< 1	.00	.78
PSO x PS	1	< 1	.01	.55
TS x PSO x PS	1	119.48**	.69	.00
TS x SO	1	6.16*	.10	.02
PSO x SO	1	1.02	.02	.32
PS x SO	1	< 1	.00	.76
TS x PSO x SO	1	< 1	.00	.95
TS x PS x SO	1	< 1	.02	.37
PSO x PS x SO	1	< 1	.01	.56
TS x PSO x PS x SO	1	< 1	.00	.57
TS within-group error	54	(245,101.65)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$. ** $p < .01$

Table 2

ANOVA for Response Latencies as a Function of Participant Sexual Orientation, Target Sex, Perspective Sex, Perspective Sexual Orientation for Post-pubescent targets under speeded conditions

Source	*df*	*F*	η_p^2	*p*
Between subjects				
Participant Sexual Orientation (SO)	1	6.09*	.10	.02
SO within-group error	54	(45,493.33)		
Within subjects				
Target Sex (TS)	1	5.14*	.09	.03
Perspective Sexual Orientation (PSO)	1	5.34*	.09	.03
Perspective Sex (PS)	1	3.89	.07	.05
TS x PSO	1	< 1	.00	.94
TS x PS	1	5.45*	.09	.02
PSO x PS	1	1.59	.03	.21
TS x PSO x PS	1	86.02**	.61	.00
TS x SO	1	16.44**	.23	.00
PSO x SO	1	< 1	.01	.52
PS x SO	1	< 1	.02	.34
TS x PSO x SO	1	1.70	.03	.20
TS x PS x SO	1	3.00	.05	.09
PSO x PS x SO	1	4.07*	.07	.05
TS x PSO x PS x SO	1	< 1	.01	.41
TS within-group error	54	(4,157.45)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$. ** $p < .01$

Table 3

Separate ANOVAs for response latencies as a function of Participant Sexual Orientation, Target Sex and Target Sexual Maturation from four different assigned perspectives under standard conditions

		Male perspectives						Female perspectives					
		heterosexual			homosexual			heterosexual			homosexual		
Source	*df*	*F*	η_p^2	*p*	*F*	η_p^2	*p*	*F*	η_p^2	*p*	*F*	η_p^2	*p*
	Between subjects												
Participant Sexual Orientation (SO)	1	1.41	.03	.24	1.32	.02	.26	< 1	.01	.44	2.18	.04	.15
SO within-group error	54	(3,777,201.93)			(4,792,329.45)			(1,501,971.10)			(2,147,021.80)		
	Within subjects												
Target Sex (TS)	1	64.24**	.54	.00	98.59**	.65	.00	51.17**	.49	.00	119.91**	.69	.00
Target Sexual Maturation (TSM)	4	19.42**	.60	.00	14.22**	.53	.00	35.68**	.74	.00	22.92**	.64	.00
TS x TSM	4	6.10**	.32	.00	5.61**	.31	.00	7.61**	.37	.00	10.50**	.45	.00
TS x SO	1	< 1	.00	.87	< 1	.01	.49	< 1	.00	.87	< 1	.00	.91
TSM x SO	4	1.90	.13	.13	1.55	.11	.20	< 1	.06	.55	< 1	.01	.98
TS x TSM x TSO	4	1.83	.13	.14	1.07	.08	.38	1.20	.09	.32	< 1	.06	.53
TS within-group error	54	(673,853.32)			(391,953.19)			(381,493.85)			(224,794.07)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$. ** $p < .01$

Table 4

Separate ANOVAs for response latencies as a function of Participant Sexual Orientation, Target Sex and Target Sexual Maturation from four different assigned perspectives under speeded conditions

		Male perspectives						Female perspectives					
		heterosexual			homosexual			heterosexual			homosexual		
Source	*df*	*F*	η_p^2	*p*	*F*	η_p^2	*p*	*F*	η_p^2	*p*	*F*	η_p^2	*p*
Between subjects													
Participant Sexual Orientation (SO)	1	6.94*	.11	.01	1.48	.03	.23	2.13	.04	.15	5.03*	.09	.03
SO within-group error	54	(82,580.13)			(76,998.46)			(70,744.31)			(66,172.75)		
Within subjects													
Target Sex (TS)	1	53.77**	.50	.00	92.47**	.63	.00	79.30**	.60	.00	102.95**	.66	.00
Target Sexual Maturation (TSM)	4	21.62**	.63	.00	20.74**	.62	.00	35.33**	.74	.00	23.29**	.65	.00
TS x TSM	4	4.18**	.25	.01	7.91**	.38	.00	2.28	.15	.07	7.82**	.38	.00
TS x SO	1	3.98	.07	.05	7.19**	.12	.01	2.47	.04	.12	1.01	.02	.32
TSM x SO	4	2.10	.14	.10	< 1	.07	.45	1.17	.08	.33	2.49	.16	.06
TS x TSM x TSO	4	4.85**	.28	.00	< 1	.05	.67	< 1	.02	.92	< 1	.05	.59
TS within-group error	54	(6,023.95)			(8,571.77)			(8,476.22)			(6,962.00)		

Note. Values enclosed in parentheses represent mean square errors.

* $p < .05$. ** $p < .01$

Table 5

Mean latencies (ms) as a function of Target Sexual Maturation (prepubescent vs. postpubescent) and Target Sex (male vs. female) for standard viewing time from four different assigned perspectives with hetero- and homosexual men

	Female stimuli				Male Stimuli				Effect Size
	prepubescent		postpubescent		prepubescent		postpubescent		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*d*
Perspective Heterosexual Male									
Heterosexual Men (n=26)	1384[a]	594	2607[b]	1302	1240[a]	591	1459[a]	751	1.08
Homosexual Men (n=30)	1875[b]	738	2388[c]	827	1414[a]	518	1658[b]	684	0.96
Perspective Homosexual Male									
Heterosexual Men (n=26)	1174[a]	521	1469[ab]	831	1510[b]	792	2189[c]	987	-0.79
Homosexual Men (n=30)	1359[a]	656	1630[b]	919	1655[b]	731	2597[c]	970	-1.02
Perspective Heterosexual Female									
Heterosexual Men (n=26)	1013[a]	326	1562[b]	721	1264[b]	497	2144[c]	683	-0.85
Homosexual Men (n=30)	1151[a]	313	1580[b]	677	1336[b]	323	2217[c]	731	-0.90
Perspective Homosexual Female									
Heterosexual Men (n=26)	1553[a]	547	2083[b]	666	1049[a]	481	1210[a]	388	1.60
Homosexual Men (n=30)	1508[b]	613	2147[c]	654	1223[a]	482	1486[b]	567	1.08

Note. Different index letters in one row indicate significant differences in simple tests (Bonferroni-corrected $\alpha = .008$). Effect sizes for the different latencies are based on male vs. female postpubescent stimuli.

Table 6

Mean latencies (ms) as a function of Target Sexual Maturation (prepubescent vs. postpubescent) and Target Sex (male vs. female) for speeded response task from four different assigned perspectives with hetero- and homosexual men

	Female stimuli				Male Stimuli				Effect Size
	prepubescent		postpubescent		prepubescent		postpubescent		
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*d*
Perspective Heterosexual Male									
Heterosexual Men (n=26)	515[b]	128	609[c]	116	478[a]	101	511[b]	115	0.85
Homosexual Men (n=30)	589[b]	99	626[b]	84	531[a]	84	624[b]	97	0.02
Perspective Homosexual Male									
Heterosexual Men (n=26)	478[a]	104	498[a]	120	514[a]	114	580[b]	109	-0.72
Homosexual Men (n=30)	474[a]	73	523[b]	85	552[b]	102	647[c]	98	-1.35
Perspective Heterosexual Female									
Heterosexual Men (n=26)	453[a]	81	528[b]	111	506[b]	110	591[c]	118	-0.55
Homosexual Men (n=30)	482[a]	80	536[b]	107	556[b]	81	629[c]	95	-0.92
Perspective Homosexual Female									
Heterosexual Men (n=26)	513[a]	108	573[b]	107	442[a]	85	481[a]	92	0.92
Homosexual Men (n=30)	549[b]	105	623[c]	86	481[a]	86	562[b]	93	0.68

Note. Different index letters in one row indicate significant differences in simple tests (Bonferroni-corrected $\alpha = .008$). Effect sizes for the different latencies are based on male vs. female postpubescent stimuli.

Figure Captions

Figure 1. Response latencies (± SE) as a function of Target Sex, Target Sexual Maturation, and Participant Sexual Orientation in a standard viewing time task (self-perspective).

Figure 2. Response latencies (± SE) as a function of Target Sex, Target Sexual Maturation, and Participant Sexual Orientation in a speeded viewing time task (self-perspective).

Figure 3. Response latencies (± SE) as a function of Target Sex, Target Sexual Maturation, and Participant Sexual Orientation in four different vicarious viewing time tasks (standard response condition).

Figure 4. Response latencies (± SE) as a function of Target Sex, Target Sexual Maturation, and Participant Sexual Orientation in four different vicarious viewing time tasks (speeded response condition)

Figure 1

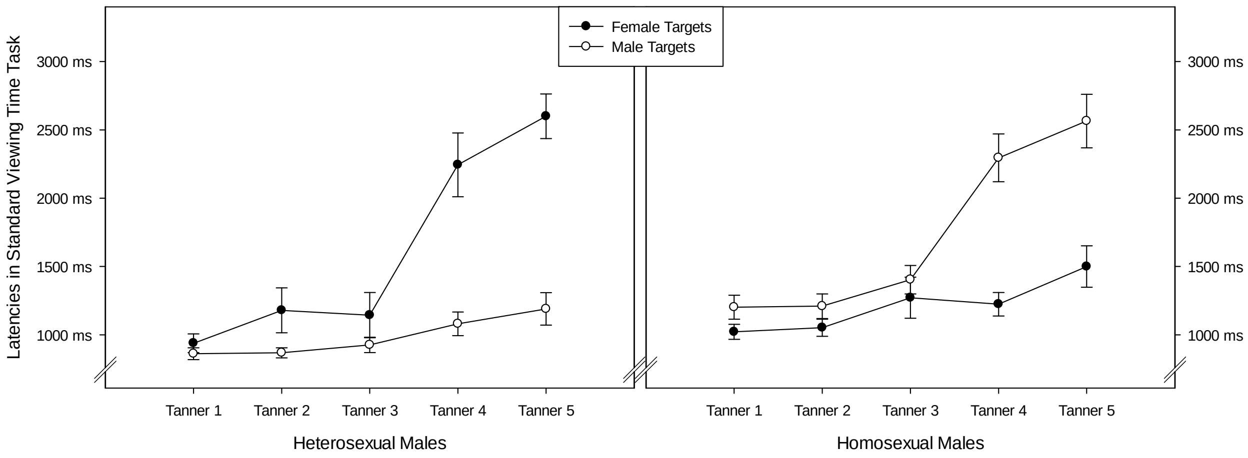
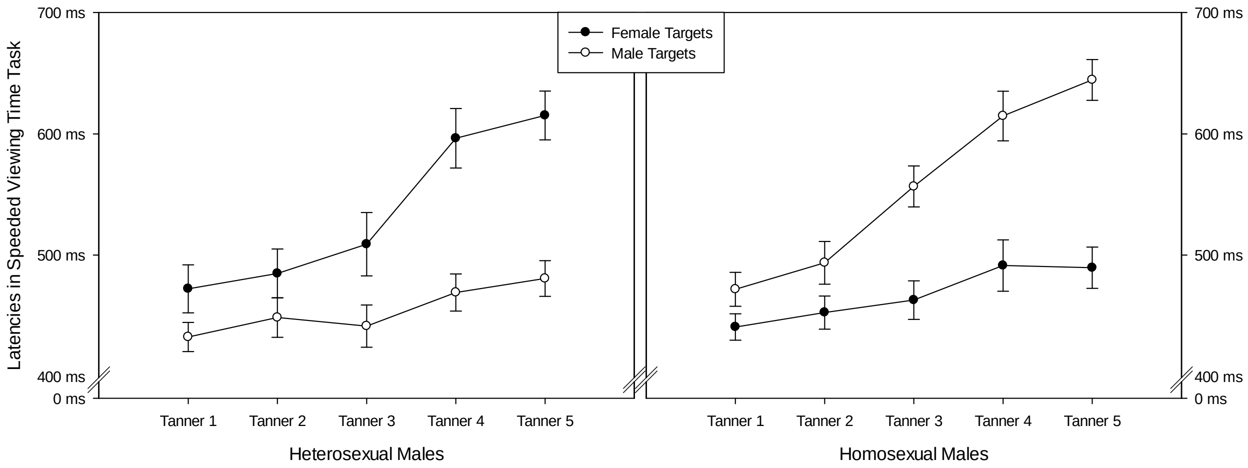

Female Targets
Male Targets
Latencies in Standard Viewing Time Task
3000 ms
2500 ms
2000 ms
1500 ms
1000 ms
Tanner 1
Tanner 2
Tanner 3
Tanner 4
Tanner 5
Heterosexual Males
Homosexual Males

Figure 2



Latencies in Speeded Viewing Time Task
700 ms
600 ms
500 ms
400 ms
0 ms
Female Targets
Male Targets
Tanner 1
Tanner 2
Tanner 3
Tanner 4
Tanner 5
Heterosexual Males
Homosexual Males

Figure 3

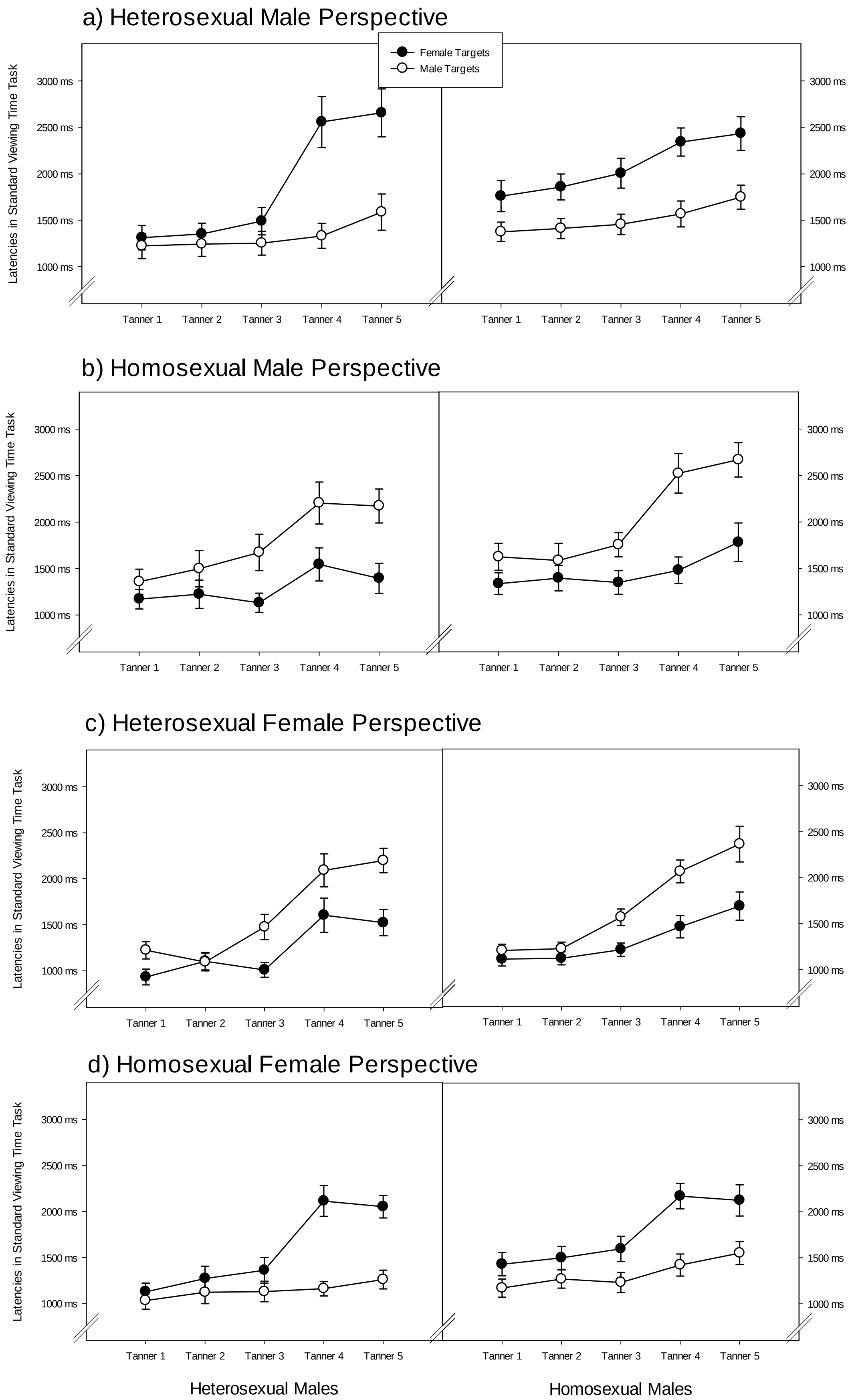
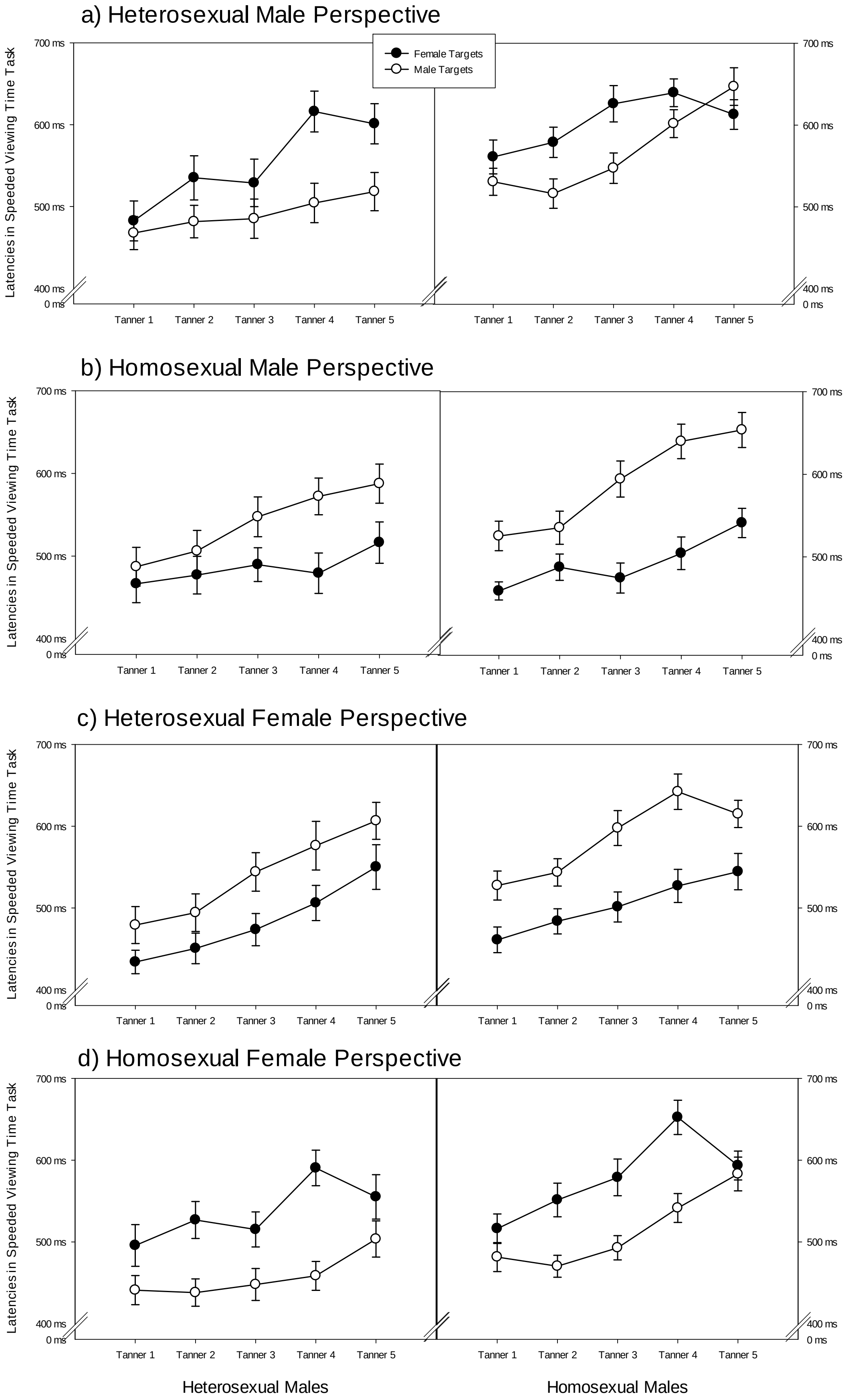

a) Heterosexual Male Perspective
Female Targets
Male Targets
b) Homosexual Male Perspective
c) Heterosexual Female Perspective
d) Homosexual Female Perspective
Latencies in Standard Viewing Time Task
1000 ms
1500 ms
2000 ms
2500 ms
3000 ms
Tanner 1
Tanner 2
Tanner 3
Tanner 4
Tanner 5
Heterosexual Males
Homosexual Males

Figure 4


a) Heterosexual Male Perspective
b) Homosexual Male Perspective
c) Heterosexual Female Perspective
d) Homosexual Female Perspective
Female Targets
Male Targets
Latencies in Speeded Viewing Time Task
700 ms
600 ms
500 ms
400 ms
0 ms
Tanner 1
Tanner 2
Tanner 3
Tanner 4
Tanner 5
Heterosexual Males
Homosexual Males