

# Linking Useful Field of View (UFoV) and Social Competence among College Students

Oren Shtayermman<sup>1\*</sup>, Sarah Banks<sup>2</sup> and Jason Fletcher<sup>3</sup>

<sup>1</sup>Chamberlain University, Illinois, United States

<sup>2</sup>University of Connecticut, Connecticut, United States

<sup>3</sup>NYU Rory Meyers College of Nursing, New York, United States

## Research Highlights

- Data presented new ways to evaluate social competence and to link it to tests of the UFoV (processing speed, selective attention, and divided attention).
- This is the first study to examine the relationship between mental health and social competence, as mediated by the UFoV subsets.
- Given lack of current data on this topic, this study contributes to scientific community, and opens up opportunities for new explorations related to social competence.

## Abstract

Currently, socialization among college students on campus is an area of interest for many researchers. The interest is related to the transition to college life and independent living as well as developing new social skills. Because social skills require individuals to use attention and processing speed, this study aimed to examine this relationship using the Useful Field of View (UFoV) test. A total of 48 undergraduate college students participated in a cross-sectional study over a period of two months. This exploratory study revealed some interesting and new ways to evaluate social competence and to link it to the sub tests of the UFoV (processing speed, selective attention, and divided attention). Gender and racial differences were found in relation to social competence. Differences were also found in the levels of selective attention between genders and between sexual orientation groups. The study also revealed correlations between depression and some of the subscales of social competence as well as the total score for social competence. Due to the exploratory nature of the study and the lack of previous research in the area of UFoV and social competence, and because the study had a small sample with a homogenous attribute, a larger study with a diverse sample is needed to better understand the relationship between these concepts.

**Keywords:** College Students; Attention; Processing Speed; Socialization; Social Competence

\*Correspondence to: Oren Shtayermman, Chamberlain University, Illinois, United States; E-mail: [OShtayermman@chamberlain.edu](mailto:OShtayermman@chamberlain.edu)

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## Introduction

The socialization of college students has been studied in multiple contexts, including its relation to online social media use, parental attachment, adjustment to college life, and life satisfaction [1,2]. College students face increasingly more challenges related to social skills and social competence, which have been linked to internet communication and online identities while adjusting to college life [3]. Some of these challenges have been associated with deficits in attention and processing ability among individuals diagnosed with attention deficit hyperactivity disorder (ADHD) and other neuropsychiatric disorders [4]. Useful Field of View (UFoV) is a tool designed to assess processing speed for fast visual detection as well as selective and divided attention. Initially, the tool was created to measure the potential for car crashes among older adults. When considering the usefulness of this tool for measuring other aspects of life, in the present study, we suggest that, people can use it to safely and appropriately engage in social interactions. Each person in the interaction will need to be mindful of the verbal and nonverbal information presented to them, process that information, and respond based on the content and what was processed [5]. In essence, social

competence is a skill that contains social, emotional, cognitive, and behavioral aspects needed for successful adaptation in social settings. To the best of our knowledge, this study is the first to explore the potential relationship between UFoV and social competence. In previous research, UFoV has most often been studied in relation to the driving performance and crash rates of older adults because visual attention and information processing impact many aspects of daily life [6]. However, to date, no studies have shed light on the impact these aspects of UFoV have on socialization and social competence. Attentional differences underly the antisocial behavior of some individuals, including psychopaths and low-socialization college students [7,8], but it has not been determined whether the different attentional concepts included in UFoV (selective attention, divided attention, processing speed) are directly correlated with levels of socialization, including social skills and social competence.

## Literature Review

### Socialization

According to Grusec JE, et al. (2015) [9], the term socialization



refers to “the processes whereby naïve individuals are taught the skills, behavior patterns, values, and motivations needed for competent functioning in the culture which they belong to” [9]. Prior to this definition, in the mid-20<sup>th</sup> century, socialization was widely viewed as the process of instilling in a child a set of desired behavioral habits [9]. Within this perspective, socialization can be viewed through the lens of social learning theory, in which parents, teachers, and peers are the models of desired behavior and children learn through observation [9]. Through socialization, a child is able to develop the ability to self-regulate [9]. Although the concept of socialization most often refers to social skills and social competence, these terms are not interchangeable; rather, they are differentiated in a key way: social skills include an individual’s specific behavior, while social competence refers to how a person uses social skills in a social environment [10].

Little is known about the role social competence plays among young adults [9]. The young adult stage has become increasingly characterized by postsecondary education and training, during which individuals acquire skills and tools from teachers and professors, among other members of their social group, which will enable them to begin a career and participate in society. The education and training process requires young adults to acquire knowledge, behaviors, and values, such as consistently meeting expectations and demonstrating professionalism, and being motivated to achieve self-sufficiency [9]. All of these activities can serve to encourage and foster development of socialization.

### Social Skills vs. Social Competence

Development of social skills and social competence typically begins in children when they are in elementary school, and it continues throughout their life span [10]. The development of appropriate social skills is considered to be critical to an individual’s social development and personal well-being [11]. Studies have shown that social skills are essential for social inclusion and participation, academic development, and a successful transition to adult life and work [11,12]. To develop as a social being, individuals must be familiar with the norms, rules, and values of society, and master the skills necessary to effectively interact with members of their community. The necessary skills can include tolerance, non-violent conflict resolution, and constructive communication, all of which are dependent on an individual’s ability to attend to and integrate various stimuli in their social environment [10].

Social competence is conceptualized as the ability to communicate effectively and enlist others’ support and cooperation. Kemple K (2016) [13], described social competence as “all the social, emotional, and cognitive knowledge and skills children need to achieve their goals and be effective in their interactions with others” [13]. School is the primary setting in which children learn to set and attain their goals, and to maintain positive relationships with others. Failing to master the array of social, emotional, and cognitive skills encompassed by social competence can impact a child’s ability to resolve conflict, cooperate with others, and value differences and diversity—all of which are essential tasks in early education [13]. Social competence has also been shown to impact an individual’s success in the educational system, especially in early childhood [13]. Social competence is largely viewed as a component of the subject area of social studies, and it is an important part of an individual’s social and emotional development.

### Useful Field of View

The concept of UFoV encompasses selective attention, divided attention, and processing speed [6,14]. As previously noted, the UFoV test was originally designed to predict the likelihood of a car crash

in older adults (65-82 years of age), a population that, due to the analysis of crash pattern, has been shown to have significant problems with visuospatial information processing [6]. UFoV was designed in respond to significant evidence that the crash rates of older adults per mile of road exposure increases dramatically, despite attempts to mitigate declines in the functional capacity of older adults by avoiding rush-hour traffic and nighttime driving [6,14].

### Selective Attention

According to the *Diagnostic and Statistical Manual of Mental Disorders* [15] selective attention is “the capability or process of selecting out of the totality of available sensory or affective stimuli, those most appropriate or desirable for focus at a given time” [16]. Selective attention to various sensory stimuli is often conceptualized as the differential weighting of the dimensions of the stimuli in perceptual decisions, such as similarity judgments, attentional learning, and classifications [17]. In individuals with neuropsychiatric disorders, such as ADHD, inattentive symptoms, such as being distracted by other stimuli and failing to pay close attention to details, seem to be attributable to a selective attention deficit [16]. The inability to selectively attend to specific stimuli has also been shown to relate to personality traits; introverts have a more difficult time blocking out extraneous stimuli than extroverts [16]. A person’s ability to focus on a task at hand and block out irrelevant stimuli is a critical component of efficient information processing [18,19]. Selective attention is essential to the process of social competence; individuals must attend to specific stimuli in the presence of many others in order to identify rules for accepted behavior and conform their own behavior to these rules [20].

### Divided Attention

According to Rill RA, et al. (2018) [21], attention is one of the most studied ability constructs in relation to multitasking. Divided attention refers to the ability to process multiple sources of information, enabling an individual to carry out more than one task at the same time [21]. Divided attention tasks are present in an individual’s daily life; they include activities, such as driving a car, shopping, and studying. This skill is also required for many professions, such as call center agents, pilots, physicians, and engineers [21]. While divided attention increases the risk of interference, and it may reduce efficiency and accuracy, it is also essential for daily tasks. It is important to note that divided attention is a much greater challenge for individuals with conditions, such as autism spectrum disorder (ASD), information processing disorders, and mental health disorders, such as schizophrenia, than it is for individuals without these or similar conditions [21]. Furthermore, ADHD and ASD have both been shown to be related to more severe deficits in social competence, likely as a result of specific neurocognitive deficits that mediate the psychological processes children use to shape their social environments [22]. Divided attention also requires several other cognitive processes that occur in the cortical areas associated with the ventral and dorsal attention networks. For example, divided attention tasks activate the prefrontal cortical areas, which have been reported to be involved in coordination of dual tasking [19]. Lieberman MD, et al. (2001) [23], proposed that individuals who lack the cognitive processes to successfully divide attention and struggle with dual tasking or multitasking often fail to interpret nonverbal communication in a social setting, thus leading to deficits in social competence.

### Processing Speed

Processing speed and working memory are, typically, measured by choice reaction time tasks [24]. Processing speed and reaction times



to the presentation of auditory and visual stimuli have been studied in school-aged children and adults [24]. When a simple visual and auditory detection task was presented to elementary-school aged children, the results showed faster reaction times to audiovisual stimuli in comparison to unimodal stimuli [24]. Attention is one of the most important factors in the integration and processing of audiovisual stimuli, and although Yang W, et al. (2016) [24], focused on children, attention also modulates audiovisual integration processes in adults. Audiovisual integration is especially important in the social environment because faces, body language, voices, and sounds provide essential social information [25]. Evidence has been found to support the relationship between stimuli integration deficits and emotion recognition deficits - a key skill for effective socialization [25].

### Conceptual Framework

While no study, to date, has specifically assessed the possible relationship between UFoV and social competence, a small number of researchers have hypothesized that attentional differences underlie the antisocial behavior of some individuals [8]. Figure 1 presents the conceptual framework used in this study. It has been reported that psychopaths have the ability to screen out tones that are irrelevant to their task, which is believed to be a result of their tendency to allocate greater attention to things of immediate interest [7,8]. As previously discussed, mental health can be analyzed as a mediating and/or a moderating variable in the relationship between UFoV and socialization. It has been suggested that clinical models of information processing are linked to specific emotional disorders, particularly anxiety and depression [26]. Williams JM, et al. (1997) [27], assumed that different emotional states and disorders affect aspects of attention and memory. They noted that the results of previous studies showed that anxious individuals tend to direct their attention toward threatening information in the early, automatic stages of processing, and depressed individuals tend to elaborate on depression-related topics and stimuli during processing [27].

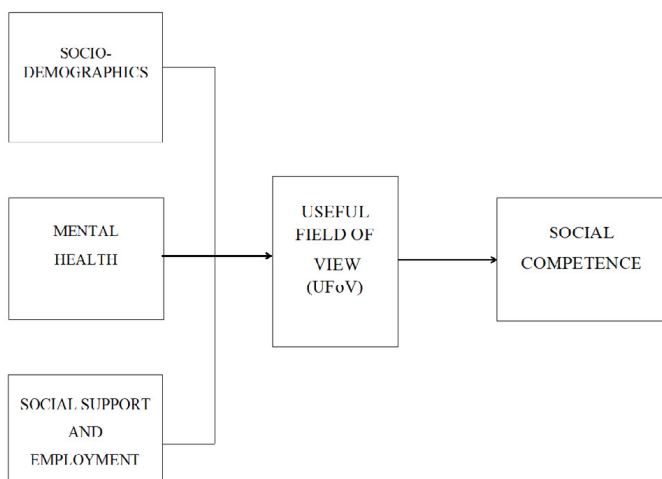


Figure 1: Conceptual framework.

While driving, an individual is expected to be able to process a significant number of various types of information. A driver is expected to pay close attention to signs, cars, and any other types of vehicles on the road. In comparing a theoretical approach to driving to social interactions and the skills required for appropriate socialization, similar expectations are placed on individuals so they can appropriately interact with others and socialize. Individuals are expected to pay attention to

verbal and nonverbal information, to engage in feedback, and/or to end an interaction. It has also been suggested that the attentional aspects of processing affect an individual's capacity to sustain independent living, which, in turn, affect his/her overall health [28].

### Methods

#### Study Design

This study used a cross-sectional, exploratory, and descriptive design to investigate UFoV and its association with mental health and social competence. The UFoV data was collected at the PIU's office. The other parts of the survey were completed using a paper and pencil. A face-to-face data collection method to gather information about undergraduate university students at a small liberal arts college in rural Connecticut, in the northeastern part of the United States. Inclusion criterion for the study was a student attending the university with a full-time status enrolled in one of the following programs: Sociology, Anthropology, Criminal Justice, Social Work, and Psychology. The university students were informed about the study in various classes within their respective departments. A total of 48 individuals participated in the study between November 2018 and February 2019. The design had backward directionality and retrospective timing. The face-to-face data collection method allowed for a higher response rate, which served as a strength; it also enabled the study to be conducted within a shorter timeframe at a lower cost. However, the design did not include a control group and the information collected was subject to recall bias, which are weaknesses of the method. An added challenge was the use of software and a touch screen that required the participants to be present at the principle investigator's (PI's) office and wait for instructions pertaining to each of the three parts of the UFoV testing. This led to a relatively smaller sample size than initially expected.

#### Sampling Plan and Testing Procedure

Non-probability sampling, using a purposive sampling technique, was used to collect the data. The participants completed a questionnaire with the measures presented below. The participants provided their informed consent, and they were given the opportunity to ask questions and receive clarifications pertaining to the study. Following the informed consent process, the participants were provided with the questionnaire to be completed. Once completed, the participants were directed to sit in front of the computer with the touch screen to complete the UFoV test. The research team used the following configuration of hardware and software to ensure consistent results from the study: Windows 7 operating system 2, a 256MB video card, screen resolution set to 1440 X 900 1 gigabyte (GB), and a 17-inch monitor 7.16 GB available hard disk space (32-bit) or 20 GB (64-bit). Based on information from the UFoV original manual, each participant was instructed to use both eyes to spot, recognize, and locate, briefly, the presented targets. In the first subtest, each participant identified a target presented in a centrally located fixation box that was presented for varying lengths of time (processing speed). In the second subtest, each participant identified a target, but also located a concurrently presented target displayed in the periphery of the computer screen (divided attention). The third subtest was similar to the second, except that the target displayed in the periphery was rooted in distractors, making the participant's task more challenging (selective attention).

#### Measures

Socio-demographic data, including age, gender, and number of work hours per week if they were working, were obtained using



common questions. Level of social support was measured using the Multidimensional Scale of Perceived Social Support [29]. This scale consists of 12 items that measure level of social support from three different sources: family, friends, and significant others. Four items assessed social support for each source, each of which was a statement requiring the participant to indicate the degree of agreement or disagreement. A higher score on the scale indicated greater levels of social support. Cronbach's alpha for the total scale was .88; the alphas for the significant other, family, and friends' subscales were .91, .87, and .85, respectively.

Data on major depressive disorders were obtained using the Beck Depression Inventory (BDI). The BDI is a 21-item self-administered tool that measures symptoms of depression [30]. The 21 groups of statements described somatic and cognitive-emotional symptoms of depression. Each consists of four response categories, rated from 0 to 3 according to severity. The participants chose the response closest to their level of depression in the previous week. A total score was calculated, with a higher score indicating more severe depression. The psychometric properties of the BDI supported its use. A high concurrent validity was documented between the BDI and other widely available depression instruments [30]. The BDI also showed high construct validity with the medical symptoms it measures, and a coefficient alpha rating of .92 for outpatient samples and .93 for college student samples.

UFoV was measured and assessed using a computer-based assessment of visual information processing producing results for: processing speed, divided attention, and selective attention. The ranges for each of the scales are presented below:

**Subtest 1: Processing Speed (ms)**

- > 0 & ≤ 30 Normal central vision and processing speed.
- > 30 & ≤ 60 Normal central vision but somewhat slowed processing speed.
- > 60 & < 350 Central vision loss and/or slowed processing speed.
- ≥350 & ≤ 500 Severe Central vision loss and/or very slowed processing speed.

**Subtest 2: Divided Attention (ms)**

- > 0 & < 100 Normal divided attention ability.
- ≥ 100 & < 350 Some difficulty with divided attention.
- ≥ 350 & ≤ 500 Severe difficulties with divided attention.

**Subtest 3: Selective Attention (ms)**

- > 0 & < 350 Normal selective attention ability.
  - ≥ 350 & < 500: Difficulty with selective attention.
  - >500 Severe difficulty with selective attention social competence.
- We used a newly created 19-item self-report instrument to measure adolescents' offline social competence. The items of this instrument were based on several earlier instruments measuring social skills, interpersonal competence, or communicative efficacy among adolescents [31-33]. The 19 items were meant to measure four social competence dimensions that have been most consistently identified in earlier instruments and that are theoretically relevant to our research purpose: initiation of (offline) relationships/interactions, supportiveness, assertiveness, and ability to self-disclose. The social competence items were presented to the respondents before the items measuring adolescents' Internet activities. The exact instruction was:

"Some teenagers find it easy to talk and deal with people, others find it hard. The questions below deal with how you communicated with people in the past 6 months. Can you indicate how easy or difficult each of the situations below has been for you in the past 6 months? If you haven't experienced one or more of the situations below, please imagine how easy or difficult each of the situations would have been for you. How easy or difficult was it in the past six months to. Social competence. We used a newly created 19-item self-report instrument to measure adolescents' offline social competence. The items of this instrument were based on several earlier instruments measuring social skills, interpersonal competence, or communicative efficacy among adolescents [31-33]. The 19 items were meant to measure four social competence dimensions that have been most consistently identified in earlier instruments and that are theoretically relevant to our research purpose: initiation of (offline) relationships/ interactions, supportiveness, assertiveness, and ability to self-disclose. The social competence items were presented to the respondents before the items measuring adolescents' Internet activities. The exact instruction was: "Some teenagers find it easy to talk and deal with people, others find it hard. The questions below deal with how you communicated with people in the past 6 months. Can you indicate how easy or difficult each of the situations below has been for you in the past 6 months? If you haven't experienced one or more of the situations below, please imagine how easy or difficult each of the situations would have been for you. How easy or difficult was it in the past six months to..." (see items in Table 1). Response options for the items were: 1 (very difficult), 2 (difficult), 3 (not difficult, not easy), 4 (easy), and 5 (very easy).

Social competence was measured using the 19-item self-report Interpersonal Competence Questionnaire (ICQ). The items of this instrument are based on social skills, interpersonal competence, and communicative efficacy among individuals who are classified as adolescents and young adults, which is consistent with our study sample and focus [32-34]. The 19 items measure initiation of (offline) relationships/ interactions, supportiveness, assertiveness, and ability to self-disclose. The exact instruction was: "Some teenagers find it easy to talk and deal with people; others find it hard to do so. The questions below deal with how you have communicated with people in the past

**Table 1:** Sample Characteristics (N=48).

Characteristic	Percentage
Gender	
Female	77.1%
Male	22.9%
Age (M=20.79, SD=2.44)	
18-20	50%
21+	50%
Marital Status	
Single	83.3%
Married or living with partner	16.7%
Sexual Orientation	
Heterosexual	79.2%
Other	20.8%
Racial/Ethnic Category	
White	50%
Non-white	50%
Work	
Yes	62.5%
No	37.5%
Highest Level Education Completed	
Freshman	25%
Sophomore	16.7%
Junior	31.3%
Senior	25%
Other	2.1%



6 months. Can you indicate how easy or difficult each of the situations below was for you in the past 6 months? If you haven't experienced one or more of the situations below, please imagine how easy or difficult each of the situations would have been for you." The response options for these items were: 1 (very difficult), 2 (difficult), 3 (not difficult, not easy), 4 (easy), and 5 (very easy). The measure has a Cronbach's alpha of .89 [32].

## Results

The sociodemographic characteristics of the 48 students in the sample are presented in Table 1. About 77.1% of the sample were female, with a mean age of 20.79 ( $SD=2.44$ ). Close to 79.2% of the sample were heterosexual and 50% identified as Caucasian. More than 83.3% of the sample were single, and about 62% were working. Of the sample, 25% were seniors and 25% were freshman; close to one-third of the sample were juniors. According to the results, age in years and number of hours working were strongly and positively correlated  $r(48) = .468, p = .001$ . Table 2 provides information on the bivariate analysis results between the socio-demographic characteristics and the levels of social competence (subscales and totals) and between the socio-demographic characteristics and the UFoV subtests.

## Social Competence

In our sample, males scored significantly higher than females on the social competence scale ( $M = 3.30$  vs.  $2.63, t(45) = 2.21, p = .032$ ). However, females presented with a higher level of self-disclosure than males. Similarly, we found racial differences in the level of self-disclosure between Whites and non-Whites in the sample, with Whites scoring higher than non-Whites on the scale ( $M = 3.09$  vs.  $2.44, t(45) = 2.68, p = .010$ ).

## UFoV

In our sample, the processing speed subscale test scores were constant; all the participants received scores of 16, the minimum possible Response Time (RT) for the task, reflecting a ceiling effect. This could be due to the homogenous nature of the group of individuals

who participated in the sample: they were all young adults. We also found significant differences between some of the socio-demographic characteristics and the UFoV subsets. Overall, males scored significantly lower than females on the selective attention subscale ( $M = 57.91$  vs.  $98.22, t(46) = 2.30, p = .026$ ). As previously mentioned, lower scores are indicative of better selective attention. We also found significant differences in the levels of the UFoV divided attention subscale between individuals who identified as heterosexual and those who identified as others, which included all non-heterosexuals ( $M = 29.05$  vs.  $16.20, t(37.08) = 2.23, p = .032$ ). Moreover, we found significant differences between individuals who identified as single versus married or living with partners in relation to the second divided attention subscale of the UFoV; individuals who were single had a higher score ( $M = 28.45$  vs.  $16.00, t(39) = 2.27, p = .029$ ) than individuals that identified as married or living with partners. Table 3 presents the correlation coefficient of the variables in the study, and, specifically, the correlations between the participants' socio-demographics characteristics and social competency and UFoV. We also discovered that both subsets of the UFoV tests were positivity and strongly correlated  $r(48) = .415, p = .001$ .

## Correlations

A strong negative correlation was found between depression and the total score for social competence  $r(48) = -.429, p = .001$ , and between depression and the initiation subscales of social competence  $r(48) = -.498, p = .001$ . Finally, we found a moderate and positive correlation between the subscale of social competence of supportiveness and the third subset of UFoV, indicating divided attention  $r(48) = .341, p = .05$ . Table 4 and Table 5 presents the Means, Standard Deviations, and One-way ANOVA for the Associations between Education, Social Competency, and Useful Field of View (UFoV). The test showed no significant differences between the groups we tested.

## Discussion

### Social Competence

Previous studies examining social competence have identified gender differences in both spatial abilities and verbal abilities

**Table 2:** Associations between social competency, socio-demographic characteristics, and useful field of view (UFoV).

Characteristics	Social Competency										UFoV			
	Total score (n = 46)		Initiation (n = 46)		Supportiveness (n = 47)		Self-disclosure (n = 47)		Assertiveness (n = 47)		UFoV2 (n = 48)		UFoV3 (n = 48)	
	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)	n	M (SD)
<b>Gender</b>														
Male	10	3.70 (.51)	10	3.16 (.85)	10	4.30 (.73)	10	3.30* (1.01)	10	4.13 (.93)	11	26.00 (32.18)	11	57.91* (44.28)
Female	36	3.50 (.53)	36	3.19 (.81)	37	4.49 (.53)	37	2.63 (.80)	37	3.73 (.92)	37	26.49 (32.32)	37	98.22 (52.65)
<b>Sexual Orientation</b>														
Heterosexual	37	3.50 (.47)	37	3.11 (.80)	37	4.41 (.60)	37	2.76 (.90)	37	3.79 (.94)	38	29.05* (35.51)	38	91.32 (57.31)
Other	9	3.71 (.72)	9	3.48 (.86)	10	4.58 (.48)	10	2.82 (.87)	10	3.90 (.91)	10	16.20 (.63)	10	80.10 (34.41)
<b>Work</b>														
Yes	28	3.53 (.53)	28	3.19 (.81)	29	4.42 (.58)	29	2.84 (.85)	29	3.68 (.96)	30	26.13 (33.35)	30	83.07 (52.56)
No	18	3.56 (.54)	18	3.17 (.84)	18	4.49 (.57)	18	2.67 (.94)	18	4.03 (.86)	18	26.78 (30.40)	18	98.83 (54.37)
<b>Race</b>														
White	23	3.63 (.54)	23	3.17 (.86)	24	4.47 (.56)	24	3.09* (.92)	24	3.77 (.97)	24	22.96 (30.54)	24	88.96 (46.45)
Non-white	23	3.46 (.52)	23	3.20 (.78)	23	4.43 (.60)	23	2.44 (.72)	23	3.86 (.91)	24	29.79 (33.60)	24	89.00 (60.27)



**Table 3:** Correlations between age, depression, number of work hours, social support, social competency, and useful field of view (UFoV).

	1	2	3	4	5	6	7	8	9	10	11	
1. Age	---	.003	.468**	-.057	-.141	.175	-.136	-.035	-.198	-.053	-.063	
2. Depression	.003 (0.05)	---	.155	.067	.061	-.089	-.429**	-.498**	-.214	-.236	-.151	
3. Number of work hours	.468*** (0.93)	.155 (0.18)	---	-.068	-.155	-.180	-.156	-.080	-.244	.079	-.246	
4. UFoV2	-.057 (0.07)	.067 (0.07)	-.068 (0.07)	---	.415**	-.033	.028	-.076	-.151	.103	.251	
5. UFoV3	-.141 (0.16)	.061 (0.07)	-.155 (0.18)	.415** (0.85)	---	-.081	.017	.098	-.250	-.062	.341*	
6. Social Support	.175 (0.22)	-.089 (0.09)	-.180 (0.23)	-.033 (0.06)	-.081 (0.08)	---	.159	.126	-.058	.196	.143	
Social competency	1. Total score	-.136 (0.15)	-.429** (0.86)	-.156 (0.18)	.028 (0.05)	.017 (0.05)	.159 (0.18)	---	.781**	.659**	.649**	.527**
	2. Initiation	-.035 (0.06)	-.498** (0.95)	-.080 (0.08)	-.076 (0.08)	.098 (0.10)	.126 (0.13)	.781** (1)	---	.478**	.299*	.227
	3. Assertiveness	-.198 (0.27)	-.214 (0.30)	-.244 (0.38)	-.151 (0.17)	-.250 (0.40)	-.058 (0.07)	.659** (1)	.478** (0.93)	---	.088	.176
	4. Self-disclosure	-.053 (0.06)	-.236 (0.36)	.079 (0.08)	.103 (0.11)	-.062 (0.07)	.196 (0.26)	.649** (1)	.299* (0.53)	.088 (0.09)	---	.183
	5. Supportiveness	-.063 (0.07)	-.151 (0.17)	-.246 (0.39)	.251 (0.40)	.341* (0.66)	.143 (0.16)	.527** (0.97)	.227 (0.33)	.176 (0.22)	.183 (0.23)	---

<sup>1</sup>p value on *r*  
\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p < .001$

**Table 4:** Means, standard deviations, and one-way ANOVA for the associations between education, social competency, and useful field of view (UFoV).

Variables	Freshman		Sophomore		Junior		Senior		Other		ANOVA F ( $\eta^2$ )
	M	SD	M	SD	M	SD	M	SD	M	SD	
<b>Social competency</b>											
Total score	3.47	.57	3.50	.36	3.70	.54	3.49	.59	3.05	NA	.61 (0.06)
Initiation	3.08	.90	2.83	1.13	3.43	.61	3.20	.76	3.00	NA	.71 (0.07)
Supportiveness	4.33	.54	4.68	.48	4.52	.58	4.40	.61	3.40	NA	1.40 (0.12)
Self-disclosure	2.67	1.10	2.68	1.05	3.04	.76	2.67	.69	2.00	NA	.62 (0.06)
Assertiveness	3.90	.92	3.75	1.03	3.83	.93	3.73	1.03	4.00	NA	.06 (0.01)
UFoV2	26.75	34.47	36.00	52.64	27.07	30.31	19.58	10.59	16.00	NA	.33 (0.03)
UFoV3	91.67	54.65	102.63	61.29	91.87	34.10	79.67	67.21	16.00	NA	.69 (0.06)

**Table 5:** Means, standard deviations, and one-way ANOVA for the associations between education, social competency, and useful field of view (UFoV) (excluding the case with value =5).

Variables	Freshman		Sophomore		Junior		Senior		ANOVA F (df)					
	M	SD	M	SD	M	SD	M	SD						
Total score	3.47	.57	3.50	.36	3.70	.54	3.49	.59	.53 (3, 41)					
Initiation	3.08	.90	2.83	1.13	3.43	.61	3.20	.76	.93 (3, 41)					
Supportiveness	4.33	.54	4.68	.48	4.52	.58	4.40	.61	.69 (3, 42)					
Self-disclosure	2.67	1.10	2.68	1.05	3.04	.76	2.67	.69	.57 (3, 42)					
Assertiveness	3.90	.92	3.75	1.03	3.83	.93	3.73	1.03	.07 (3, 42)					
UFoV2	26.75	34.47	36.00	52.64	27.07	30.31	19.58	10.59	.40 (3, 43)					
UFoV3	91.67	54.65	102.63	61.29	91.87	34.10	79.67	67.21	.30 (3, 43)					
<b>Marital Status</b>														
Single	38	3.59 (.53)	38	3.18 (.85)	39	4.47 (.55)	39	2.83 (.92)	39	3.90 (.93)	40	28.45* (34.69)	40	93.75 (56.06)
Married or living with parents	8	3.35 (.51)	8	3.18 (.68)	8	4.33 (.68)	8	2.53 (.64)	8	3.38 (.87)	8	16.00 (0.00)	8	65.13 (27.15)

<sup>1</sup>p value on *t*-test  
\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p < .001$

[34]. Selective attention can be defined as the cognitive capacity to process certain information [35]. Selective attention, essentially, allows individuals to process task-relevant information as they are engaged in filtering and sorting information that can be distracting. Currently, there is no explanation for the gender differences in selective attention. Recent evidence has suggested that women are more easily influenced by irrelevant stimulus features [36]. Because the sample

for the present study included a homogenous group of individuals who are undergraduate students in a small liberal arts college in rural Connecticut, the results may not be reflective of the larger population. Many previous investigations [17], have examined divided attention and differences between racial groups; however, those studies focused on identifying the emotions associated with facial expressions in response to race. No previous studies have examined the association



between divided attention and social competence or racial identity. In our study, the findings show that the students who identified as White had a better selective attention score than the non-White students. Our sample consisted of more females than males, and individuals who identified as heterosexuals, which may have impacted the results. Although we had an unequal representation of sexual orientation in the sample, we found that the participants who identified as other than heterosexual (including: homosexuals, bisexuals, and others) scored better on the measure of divided attention. This could be due to the potentially higher hypervigilance among individuals who are not heterosexuals. Social competence, in general, is considered to be an important personal factor in the life experiences of humans [37].

Past research has examined the impact of depression on social competence [38]. In our study, we found that depression was negatively correlated with social competence; individuals with higher levels of depression presented with lower levels of social competence. However, it should be noted that the sample consisted of adolescent and young adult college students, which are ages at which higher levels of depression are often found. Individuals will internalize messages from the environment and, in a way, create cognitive relatedness [39].

In relation to UFoV and social competence, in the sample, we observed a relationship between divided attention and the supportiveness of individuals. This indicates that individuals who had slower reaction times on the task of divided attention showed greater levels of social competence measured in relation to supportiveness. Divided attention is linked to various tasks that must be performed daily; it is also related to the capacity to process many sources of information [21]. Divided attention is, perhaps, one of the most important skills in relation to social competence, and, especially, supportiveness, as individuals are required to identify verbal and nonverbal messages and respond to those messages appropriately. As previously mentioned, the kinds of skills an individual need for driving and socialization are similar. For example, Tennstedt SL, et al. (2013) [28], indicated that attentional processing speed impacts an individual's ability to maintain independent living and functional activities, which, in turn, affects his/her overall health and socialization. It is important to emphasize that previous research using the UFoV indicated that an individual's performance on the test is more closely related to his/her cognition than vision [40].

## Limitations and Strengths

### Limitations

This study has several limitations. First, the relatively small sample limited the sophistication of the analyses that could be conducted, and the study's statistical power. This was primarily due to limited financial resources. Because the study was conducted at a small, four-year liberal arts college in the northeastern region of the United States, results are limited in their generalizability due to the noted distribution of some of the demographic characteristics. The majority of the sample were White and heterosexual, and the age group was mostly young adults from specific programs within the university. The lack of variation in some of the variables used in this study created some challenges in testing the initial hypotheses. For example, there was a ceiling effect on the processing speed subscale of the UFoV (all the participants achieved the best possible score), which rendered it unusable for analysis. Moreover, much of the previous research done with UFoV was completed using samples of older adults, and it examined relationships between the subscales of the UFoV test and adult daily living skills or the potential risk for car crashes. The development of the UFoV for use with mostly older adults may cause some challenges in the tool's

usefulness or applicability with study samples comprised of younger participants when evaluating the three UFoV subsets. Younger individuals can be expected to have, typically, better RTs than older adults. The UFoV may be more sensitive to the range of RTs in older adults, and less informative when used with younger participants.

### Strengths

The study provides some strong conceptual and methodological strengths for research. To the best of our knowledge, this is the first study to examine the relationship between mental health and social competence, as mediated by the UFoV subsets. We included reliable and valid measures for various aspects of the study, such as social competence, UFoV skills (processing speed, selective attention, and divided attention), and depression. All the measures of the study, including UFoV, were collected using a face-to-face data collection method, which helped eliminate potential incomplete data. Given the lack of current or available data on this topic, this study contributes to the scientific community, and it opens up opportunities for new explorations in this area pertaining to social competence. Because we live in a world where we are becoming more and more physically isolated from one another, and technology is one of the major ways we establish and maintain social connections, it is important to continue to explore how mental health is impacting social competence in the era of technology use.

### Conflict of Interest

The authors declared that they have no competing interest.

### Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The Eastern Connecticut State University IRB has reviewed the material and approved the study.

### Informed Consent

Informed consent was obtained from all individuals participants included in the study.

### References

1. Harman JP, Hansen CE, Cochran ME, Lindsey CR (2005) Liar, liar: Internet faking but not frequency of use affects social skills, self-esteem, social anxiety, and aggression. *CyberPsychol Behavior* 8: 1-6. <https://doi.org/10.1089/cpb.2005.8.1>
2. Holt LJ (2014) Help-seeking and social competence mediate the parental attachment-college student adjustment relationship. *Pers Relationships* 21: 640-654. <https://doi.org/10.1111/per.12055>
3. Valkenburg PM, Peter J (2008) Adolescents' identity experiences on the internet: Consequences for social competence and self-concept unity. *Communicat Res* 45: 208-231. <https://doi.org/10.1177/0093650207313164>
4. Simoni ZR (2016) Do social skills mediate the relationship between ADHD and depression? *Social Spectr* 36: 109-122. <https://doi.org/10.1080/02732173.2015.1095662>
5. Wood JM, Owsley C (2014) Useful field of view test. *Gerontology* 60: 315-318. <https://doi.org/10.1159/000356753>
6. Schieber F, Gilland J (2005) Age differences in the useful field of view during real-world driving. *Proceed Human Fact Ergo Society Ann Meet* 49: 182-185. <https://doi.org/10.1177/154193120504900207>
7. Jutai JW, Hare RD (1983) Psychopathy and selective attention during performance of a complex perceptual-motor task. *Psychophysiology* 20: 146-151. <https://doi.org/10.1111/j.1469-8986.1983.tb03280.x>



8. Kosson DS, Newman JP (1989) Socialization and attentional deficits under focusing and divided attention conditions. *J Personal Soc Psychol* 57: 87-99. <https://psycnet.apa.org/doi/10.1037/0022-3514.57.1.87>
9. Grusec JE, Hastings PD, editors (2015) *Handbook of socialization: Theory and research*. The Guilford Press, New York, United States.
10. Selimović Z, Selimović H, Opić S (2018) Development of social skills among elementary school children. *Int J Cogn Res Sci Engin Educ* 6: 17-30. <https://doi.org/10.5937/ijrsee1801017S>
11. Vlachou A, Stavroussi P, Didaskalou E (2016) Special teachers' educational responses in supporting students with special educational needs (SEN) in the domain of social skills development. *Int J Disabil Develop Educ* 63: 79-97. <https://doi.org/10.1080/1034912X.2015.1111305>
12. Frostad P, Pijl SJ (2007) Does being friendly help in making friends? The relation between the social position and social skills of pupils with special needs in mainstream education. *Eur J Spec Needs Educ* 22: 15-30. <https://doi.org/10.1080/08856250601082224>
13. Kemple K (2016) Social studies, social competence and citizenship in early childhood education: Developmental principles guide appropriate practice. *Early Child Educ J* 45: 621-627. <https://doi.org/10.1007/s10643-016-0812-z>
14. Cerelli EC (1989) *Older drivers: The age factor in traffic safety*. National Government Publication, Washington, DC, United States. <https://doi.org/10.21949/1525311>
15. American Psychiatric Association (2013) *Diagnostic and statistical manual of mental disorders*. (5th edtn.). American Psychiatric Association, Arlington, Unites States.
16. Avisar A (2011) Which behavioral and personality characteristics are associated with difficulties in selective attention? *J Attent Disord* 15: 357-367. <https://doi.org/10.1177/1087054710365976>
17. Hanania R, Smith LB (2010) Selective attention and attention switching: Towards A unified developmental approach. *Developm Sci* 13: 622-635. <https://doi.org/10.1111/j.1467-7687.2009.00921.x>
18. Pashler HE (1997) *The psychology of attention*. MIT Press, Massachusetts, United States.
19. Salo E, Salmela V, Salmi J, Numminen J, Alho K (2017) Brain activity associated with selective attention, divided attention and distraction. *Brain Res* 1664: 25-36. <https://doi.org/10.1016/j.brainres.2017.03.021>
20. Vitale JE, Newman JP, Bates JE, Goodnight J, Dodge KA, et al. (2005) Deficient behavioral inhibition and anomalous selective attention in a community sample of adolescents with psychopathic traits and low-anxiety traits. *J Abnormal Child Psychol* 33: 461-470. <https://doi.org/10.1007/s10802-005-5727-X>
21. Rill RA, Faragó KB, Lőrincz A (2018) Strategic predictors of performance in a divided attention task. *PLoS ONE* 13: 1-27. <https://doi.org/10.1371/journal.pone.0195131>
22. Vuori M, Autti-Rämö I, Junttila N, Vauras M, Tuulio-Henriksson A (2016) Discrepancies between self- and adult-perceptions of social competence in children with neuropsychiatric disorders. *Child Care Health Develop* 43: 670-678. <https://doi.org/10.1111/cch.12406>
23. Lieberman MD, Rosenthal R (2001) Why introverts can't always tell who likes them: Multitasking and nonverbal decoding. *J Personal Soc Psychol* 80: 294-310. <https://psycnet.apa.org/doi/10.1037/0022-3514.80.2.294>
24. Yang W, Ren Y, Yang DO, Yuan X, Wu J (2016) The influence of selective and divided attention on audiovisual integration in children. *Perception* 45: 512-526. <https://doi.org/10.1177/0301006616629025>
25. Mileva M, Tompkinson J, Watt D, Burton AM (2018) Audio-visual integration in social evaluation. *J Exp Psychol Human Percept Perform* 44: 128-138. <https://psycnet.apa.org/doi/10.1037/xhp0000439>
26. Rinck M, Becker ES (2005) A comparison of attentional biases and memory biases in women with social phobia and major depression. *J Abnormal Psychol* 114: 62-74. <https://psycnet.apa.org/doi/10.1037/0021-843X.114.1.62>
27. Williams JM, Watts FN, MacLeod C, Mathews A (1997) *Cognitive psychology and emotional disorders*. (2nd edtn.). Wiley, New York, United States.
28. Tennstedt SL, Unverzagt FW (2013) The ACTIVE study: Study overview and major findings. *J Aging Health* 25: 3S-20S. <https://doi.org/10.1177/0898264313518133>
29. Zimet GD, Dahlem NW, Zimet SG, Farley GK (1998) The multidimensional scale of perceived social support. *J Person Assess* 52: 30-41. [https://doi.org/10.1207/s15327752jpa5201\\_2](https://doi.org/10.1207/s15327752jpa5201_2)
30. Beck AT, Steer RA, Carbin MG (1998) Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clin Psychol Rev* 8: 77-100. [https://doi.org/10.1016/0272-7358\(88\)90050-5](https://doi.org/10.1016/0272-7358(88)90050-5)
31. Buhrmester D, Furman W, Wittenberg MT, Reis HT (1988) Five domains of interpersonal competence in peer relationships. *J Personal Soc Psychol* 55: 991-1008. <https://psycnet.apa.org/doi/10.1037/0022-3514.55.6.991>
32. Connolly J (1989) Social self-efficacy in adolescence: Relations with self-concept, social adjustment, and mental health. *Can J Behav Sci* 21: 258-269. <https://psycnet.apa.org/doi/10.1037/h0079809>
33. Inderbitzen HM, Foster SL (1992) The teenage inventory of social skills: Development, reliability, and validity. *Psychol Assess* 4: 451-459.
34. Halpern DF (2012) *Sex differences in cognitive abilities*. (4th edtn.). Psychology Press, New York, United States. <https://doi.org/10.4324/9781410605290>
35. Driver J (2001) A selective review of selective attention research from the past century. *Br J Psychol* 92: 53-78. <https://doi.org/10.1348/000712601162103>
36. Stoet G (2017) Sex differences in the Simon task help to interpret sex differences in selective attention. *Psychol Res* 81: 571-581. <https://doi.org/10.1007/s00426-016-0763-4>
37. Lewinsohn PM, Mischel W, Chaplin W, Barton R (1980) Social competence and depression: The role of illusory self-perceptions. *J Abnormal Psychol* 89: 203. <https://psycnet.apa.org/doi/10.1037/0021-843X.89.2.203>
38. Cole DA, Martin JM, Powers B, Truglio R (1996) Modeling causal relations between academic and social competence and depression: A multi-trait-multimethod longitudinal study of children. *J Abnormal Psychol* 105: 258. <https://psycnet.apa.org/doi/10.1037/0021-843X.105.2.258>
39. Levendosky AA, Okun A, Parker JG (1995) Depression and maltreatment as predictors of social competence and social problem-solving skills in school-age children. *Child Abuse Neglect* 19: 1183-1195. [https://doi.org/10.1016/0145-2134\(95\)00086-N](https://doi.org/10.1016/0145-2134(95)00086-N)
40. Lunsman M, Edwards JD, Andel R, Small BJ, Ball KK, et al. (2008) What predicts changes in useful field of view test performance? *Psychol Aging* 23: 917-927. <https://psycnet.apa.org/doi/10.1037/a0013466>