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INTEREST DEVELOPMENT AS A DYNAMIC PROCESS IN THE WORKPLACE

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In this chapter, we review literature suggesting the benefit of integrating current conceptions of workplace interest with research on the development of interest that has primarily been studied in educational contexts. Historically, vocational interest has been used to match individuals to the workplace. This practice in vocational psychology is based on the emphasis of the "trait-like" nature of interest (Rounds & Su, 2014; Su, 2018). Traits have been considered to be stable and thus have predictive utility for patterns of behavior, and vocational interest has been shown to be relatively stable from early adolescence to adulthood (e.g., Low & Rounds, 2006, 2007; Low, Yoon, Roberts & Rounds, 2005). Moreover, as Low and Rounds (2007) reported, vocational interest measures are even more stable than personality traits. Findings such as these have led to the use of vocational interest as an indicator of optimal academic and/or career choice.

Since the publication of Strong's (1943) volume on men's and women's vocational interests, there has been a plethora of studies supporting the use of a trait-based approach to study interest in the workplace. Recent studies demonstrate that vocational interest measures are highly correlated with student and employee performances (see Nye, Su, Rounds, & Drasgow, 2012, Rounds & Su, 2014, for reviews of this literature). Not surprisingly, those students and employees who have an interest in what they are doing have been shown to perform better and persist longer in a wider variety of situations and tasks than their uninterested peers. Thus, interest is predictive of job performance.

In the following, we discuss the implications of the Four Phase Model of Interest Development (Hidi & Renninger, 2006; Renninger & Hidi, 2016) for considering how vocational interest might be supported to develop and/or deepen (see also Renninger & Hidi, 2019a). Rather than describing vocational interest as a trait, we view it as mapping onto later (or more-developed) phases of interest development (see Table 2.1). As depicted in Table 2.1, earlier

TABLE 2.1 The Four Phases of Interest Development (Hidi & Renninger, 2006): Definitions and Learner Characteristics; adapted from Renninger & S. Su, 2012.

	Phases of Interest Development			
	Less-Developed (Earlier)		*More-Developed (Later)*	
	Phase I: Triggered Situational Interest	**Phase 2: Maintained Situational Interest**	**Phase 3: Emerging Individual Interest**	**Phase 4: Well-Developed Individual Interest**
Definition	• Psychological state resulting from short-term changes in cognitive and affective processing associated with a particular class of content	• Psychological state that involves focused attention to a particular class of content that reoccurs and/or persists over time	• Psychological state *and* the beginning of relatively enduring predisposition to seek reengagement with a particular class of content over time	• Psychological state *and* a relatively enduring predisposition to reengage a particular class of content over time
Learner Characteristics	• Attends to content, if only fleetingly • May or may not be reflectively aware of the experience • May need support to engage from others and through instructional design • May experience either positive or negative feelings	• Reengages content that previously triggered attention • Is developing knowledge of the content • Is developing a sense of the content's value • Is likely to be supported by others to find connections to content based on existing skills, knowledge, and/or prior experience • Is likely to have positive feelings	• Is likely to independently re-engage content • Has stored knowledge and stored value • Is reflective about the content • Is focused on their own curiosity questions • Has positive feelings	• Independently reengages content • Has stored knowledge and value • Is reflective about the content • Is likely to recognize others' contributions to the discipline • Self-regulates curiosity questions and seeks answers • Appreciates and may actively seek feedback • Can persevere through frustration and challenge in order to meet goals • Has positive feelings

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(or less-developed) phases of interest development are less stable (and more malleable), whereas later phases have trait-like characteristics in that a person has a disposition to continue to reengage over time. In the four-phase model, interest has two related meanings. It refers to the psychological state of individuals engaging with some disciplinary content, object, or idea (henceforth, content) that is physiologically based and it also refers to their motivation to reengage with that content over time. The research literature has now confirmed that interest can be supported to develop (e.g., Harackiewicz, Durik, Barron, Linnenbrink, & Tauer, 2008; Nolen, 2007; Renninger & Riley, 2013). As interest is malleable, and can be promoted, it is not simply a trait. However, it does have a genetic component, which accounts for why interest is often associated with traits. People with genetic predispositions to figure out how things work or pursue music, for example, may have an easier time, but unless they have the opportunity and/or support to sustain these engagements, they may not develop an interest in these activities.

Whereas vocational interest focuses on already existing capacities that are used to identify interest, we study interest as a cognitive and affective motivational variable that develops by tracking the development of interest from the initial triggering of attention through to its development as an individual interest. From our perspective, individual interest, or the later phases of interest development, is the focus of research on vocational interest.

In the present chapter, we first describe the four-phase model, which was advanced on the basis of reviews of empirical studies. We then consider the relation of the four-phase model to vocational interest and describe issues raised in recent studies that may have implications for workplace interest. We conclude by pointing to the complementary nature of these approaches to the study of interest and highlight the utility of their integration for increasing understanding of interest and its role in the workplace.

The Four-Phase Model of Interest Development

The four-phase model describes interest as developing through phases regardless of age, or whether the context of its development is in the home, in or out of school, or in the workplace (see Renninger & Hidi, 2016). Research in neuroscience now provides evidence that the capacity to seek additional information about content is hardwired and the search for anticipated information that is also an aspect of interest is rewarding (Gottlieb, Oudeyer, & Baranes, 2013; Gruber, Gelman, & Ranganath, 2014; Panksepp, 1998). This also explains why developing an interest at any age is possible (Ainley & Hidi, 2014; Renninger & Hidi, 2016). Research in educational and social psychology further indicates that interest can be supported to develop through triggering.[1]

The triggering of interest directs attention to the content of interest, and is accompanied by an affective reaction, that is often, but not necessarily positive.

Triggering can refer to the response of an individual to the actions of other people (e.g. scaffolding, modeling), the design features of the environment (e.g., key words, highlighting; see related discussions in Järvela & Renninger, 2014; Renninger, Ren, & Kern, 2018), and serendipitous occurrence (e.g., the death of worms needed for an experiment, that leads to revised experimentation, see Renninger, Austin, Bachrach, Chau, Emmerson et al., 2014). Although it may seem that triggering only occurs in the first phase of interest development, other people (e.g., employers, educators, parents) can trigger the interest of individuals who already have enough interest to be involved in an activity or job, to help them focus on specific aspects of it. The triggering process is essential not only for initiation, but also for the continued deepening of interest. When interest is triggered, its continued development can be supported, leading to further engagements with content.

In any situation there are multiple potential triggers for interest (e.g., opportunities to work independently, opportunities to work in a group, novel information, challenge, personal relevance) (Renninger, Bachrach, & Hidi, 2019). Individuals may notice some of these, and others might be missed altogether. For example, an employer could provide information about educational training relevant to the workplace by posting it. One employee might recognize that he/she does not presently have the skill to be part of a select project in the office, and because of the posted information could decide to develop his or her skills. Another employee might not pick up on the notice, or think that he/she had any need to develop the skills it addressed. Follow-through to pursue additional training by an employee is likely to reflect the perception that the training could provide new ways to engage work and/or recognition of the relevance or utility of such training. Help to recognize that the training could be important may facilitate its pursuit.

Once triggered, two conditions determine whether interest is likely to continue to develop: (a) the types of connections that a person makes to the content, and (b) the forms of support (e.g., the type and extent of encouragement, modeling, collaboration) that are recognized and used. The development of interest always involves the interaction of a person and the environment. The environment (other people and/or the design of tasks, software, exhibits, etc.) may be adjusted in order to enable continued engagement. Thus, even though genetics contributes to the possibility that an interest will continue to develop, the environment has an essential role in whether this potential is realized. It is in relation to the environment that a person's interest can be triggered and supported to develop—and also that the development of new interests can be fostered. Effective triggers for interest stretch a person's understanding of the content, posing optimally discrepant problems related to the content of interest.

The triggers that are effective for persons in earlier and later phases of interest development are typically not the same (Renninger & Hidi, 2019b). For example, although novelty is a proven trigger for interest (e.g., Berlyne, 1960;

Durik & Harackiewicz, 2007), information that is novel for a person in an earlier phase of interest development is likely not to be novel for a person in a later phase (Bergin, 1999; Renninger & Bachrach, 2015). The same applies to triggers that provide a person with challenge, utility, relevance, and so forth (e.g., Dohn, 2013; Hulleman & Harackiewicz, 2009; Harackiewicz, Tibbetts, Canning, & Hyde 2014; Rotgans & Schmidt, 2014). If the content of a trigger is already familiar (e.g., individuals already know the information to be covered in the workshop), it may feel repetitive and is not likely to be an effective trigger for interest.

In addition, there is always a question about how direct or indirect support should be, as well as how extrinsic or intrinsic the triggers for interest are. Persons with little initial interest are most likely to need support that is tailored to focus their attention on relevant or key aspects of the tasks, and external triggers to enable sustained engagement. In later phases of interest individuals may also adapt their behaviors by identifying new questions to pursue and/or challenge themselves that may make what may appear to an outsider to be known, novel.

The difference between those with more and those with less developed interest is often obvious. People who have an interest in what they are doing like working on related problems (Barron, Mertl, & Martin, 2014; Lipstein & Renninger, 2007; Renninger & Riley, 2013), and if given time and opportunity, continue to develop their ability to solve these problems (Azevedo, 2006, 2013). They are likely to be creative, strategic, and successful (Barron et al., 2014). They are well able to set goals for themselves and follow through to accomplish them (Harackiewicz, et al., 2008). They ask curiosity questions and through these set new challenges for themselves (Renninger et al., 2014). They can also be expected to grow in their capacities, shouldering increasing amounts of responsibility, which can lead to creating opportunities or positions for themselves that did not exist previously (Renninger & Shumar, 2002).

In contrast, those who lack interest may not be willing to persevere to master challenge, invest additional time to make something work, or pick up on another's ideas and figure out ways in which these could be fit together with their own ideas (Lipstein & Renninger, 2007). In terms of the workplace, they also may be perceived as persons who do not fit. Supporting them to fit in, to understand and develop an interest in company goals, is possible, but also involves work on the part of the employer. Persons with little interest need to be supported for them to make connections to content, to want to persevere to master challenge, and to find engagement with content rewarding (Renninger & Hidi, 2019 a, 2019 b). The benefits of supporting a person to develop at least some interest makes the investment of time that it involves worthwhile.

Not surprisingly, interest and other motivational variables are more closely related in later phases of interest development than they are in earlier phases (Renninger & Hidi, 2016). Goal setting (the ability to set goals for oneself and

then follow through to meet them), self-efficacy (the belief that one can accomplish a task, or do the work of a discipline), and self-regulation (the ability to organize oneself to continue to persevere to reach a goal, despite the time and frustration that it may involve) are each influenced by the phase of a person's interest. In earlier phases of interest a person is not likely to set related goals, feel self-efficacious about relevant content, and/or self-regulate to engage in related activities, unless there is assistance to do so. In later phases of interest, on the other hand, interest and these motivational variables are increasingly coordinated. With developing interest, a person is more likely to set goals, feel that he or she can achieve them, and self-regulate in order to do so.

The Four-Phase Model and Interest in the Workplace

We surmise that even though the psychological state and motivational disposition that characterize the process of engaging in different contexts such as the school, the home, or the workplace are similar (see related discussion in Vroom, 1964), the nature of these contexts has led to different questions about interest. Study of student learning and interest development can be traced back to early educators and psychologists who were interested in the way in which interest informs students' attention, memory, and recall, and what this suggests about instruction (e.g., Dewey, 1913; James, 1890; Herbart, 1806/1965; Pestalozzi, 1898/2004). When educators and parents seek to support the development of their students' or their children's interest in some content (such as mathematics, playing the piano), they may be encouraging the development of interests that are completely new, interests that are developing, and/or engagement with content that the students or children perceive to be too hard for them.

The four-phase model addresses the triggering and development of new interests, continuing support for the deepening of existing interests, and making connections to difficult content. Although how much a person "likes" particular content is often used to identify interest in the literature and in every day conversation, liking is only a proxy for interest in particular content. Liking does not distinguish between earlier and later phases in the development of interest. Instead, Renninger and Hidi (2016) suggest that measurement of interest as a variable that develops should be assessed using indicators targeting behavior: the frequency (e.g., Do you do engineering problems that are not assigned?) and depth of engagement (e.g., How easy is it for you to get absorbed in solving engineering problems?), as well as whether engagement is sometime voluntary (e.g., Do you talk about engineering outside of work you need to do for class?) and independent (e.g., Do you do engineering problems that are not assigned?). These indicators have been reliably found to form one factor (e.g., Renninger & Schofield, 2014; see also Renninger & Hidi, 2016), and can be assessed informally in the workplace, in addition to more formally using age,

content, and context-appropriate methods such as observation, surveys, log files, and experience-sampling.

In contrast, the focus of studies of vocational interest has been the fit of the person to the environment, rather than how the environment might be adjusted to meet the needs of the person. Studies of vocational interest were first undertaken to match persons to different areas of engineering (Moore, 1921), which eventually led to studies of the match of persons to different jobs and the development of interest inventories (e.g., Holland, 1959; Paterson, Elliot, Anderson, Toops, & Heidbreder, 1930; Strong, 1943). Presumably because vocational interest is related to the workplace, and the associated expectation for efficient business practices that would not typically include assisting an employee to develop interest that does not already exist, it has not focused on the development of new interests. As such, even though findings from studies of interest indicate that new interests can be developed at any age and in any context, the research on vocational interest has not focused on how to support the development of new interest and/or existing interests.

We suggest not only that the phases of emerging and well-developed individual interest in the four-phase model map onto workplace interest, but also that research on the model's less-developed phases of triggered and maintained situational interest could inform workplace practices (Renninger & Hidi, 2019a). Renninger and Hidi (2016) use the four-phase model to describe the case of an engineer and his interest in problem solving that is associated with analysis and design of systems. They also describe the challenges he faces in his work at a relatively small firm. The engineer does not voluntarily engage in selling the firm's "products," despite the fact that selling is essential for engineering firms and brings in the business that provides the engineer with the types of problems he likes to solve. The engineer does not seem to recognize that selling really needs to be done, or that selling could be a kind of game/problem to be solved. However, selling is a related interest that the engineer may need to develop if he wants to continue to be employed by the firm.

Although a vocational interest inventory enables a person to identify a potential career such as engineering based on existing characteristics, or traits, it cannot ensure that the person who pursues engineering will be successful. Research that is the basis of the four-phase model suggests that the engineer's environment might be adjusted to enable him to understand the role of sales in whether the firm continues to win jobs on which he might work, and on the basis of this content knowledge lead him to appreciate the necessity of mastering sales (e.g., Harackiewicz, et al., 2014; Hulleman & Harackiewicz, 2009). Interactions with other people who support the engineer to understand how they think and go about selling could be important forms of support. The engineer needs content-specific support and encouragement to engage in selling. Chances are that the engineer knows that he is supposed to do selling and that he needs models and possibly some collaboration with others who are

doing selling initially in order to figure out how he too can do selling. He also would benefit from recognition of whatever positive efforts he has invested in doing selling and an opportunity to reflect in a constructive way on the relative success of his efforts and what he might do differently another time (see related discussions and studies of similar situations with students in Azevedo, 2006; Nolan, 2007; Pressick-Kilborn, 2015; Renninger, 2010; Renninger et al., 2014).

It appears that the source of differences between research on the four-phase model and vocational interest stems from the contexts in which interest has been studied and the research questions that have been pursued. Renninger and Hidi (2011) identified five characteristics of interest on which researchers of interest tend to agree, regardless of the focus of their research questions. Interest:

- is always content specific
- exists in the interaction between a person and his or her environment
- has both an affective and a cognitive component
- may or may not be something of which a person is reflectively aware
- has a physiological/neurological basis.

Interest is considered to be content specific (e.g., interest in engineering) by both those studying interest in terms of the four-phase model and those studying vocational interest. However, the two groups of researchers differ in their conceptualizations of the second characteristic: that interest exists in the interaction between the person and his or her environment. Those studying the four-phase model are focusing on the dynamics of the interaction, which includes the adjustment that other people or the design of the environment can make to accommodate the level of a person's interest development. Although workplace interest research may be based in person-environment fit models that assume that the relation between interest and environment is dynamic (e.g., Su, Murdock, & Rounds, 2015), and the person and the environment components of the model can each be dynamic (Dawis & Lofquist, 1984), it has not focused on what to do if there is no fit between the person and the environment.

Both sets of researchers appear to agree on the third characteristic, that interest has both a cognitive and an affective component, but they also differ in their conceptualization of what the affective component references. Researchers focusing on the four-phase model identify cognition and affect as including knowledge and feelings (positive and negative), as well as value. They have pointed to the coordination of these components, as well as the likelihood that the relative importance of each changes as interest develops (see Hidi & Renninger, 2006). In earlier phases of interest development, they describe affect as assuming more prominence. In later phases, cognition and the development of knowledge become essential.

In contrast, in considering vocational interest to be a trait, vocational interest reflects or describes a person's preferences, or what they like (Strong, 1943).

However, developments in neuroscience now further distinguish among liking, wanting, and learning (e.g., Berridge, Robinson, & Aldridge, 2009). Liking may accompany interest as it develops, but does not distinguish among phases of interest (Ainley & Hidi, 2014); frequency and depth (in terms of knowledge) need to be assessed, as does whether activity is voluntary and/or independent when this is an option.

Although the fourth and fifth characteristics have not been a focus of research on vocational interest, they are relevant to the workplace. The fourth characteristic, that a person may or may not be aware of their interest, has implications for measurement of interest and for providing support for interest development. In earlier phases of interest especially, individuals may not realize that their interest has been triggered. They are not, as such, necessarily able to self-report about the triggering of their interest, nor are they making decisions to engage wilfully. Rather they engage because the conditions provided by other people or the environment support them to engage: their attention has been triggered, supported to continue to develop, and they want to learn something more. The predictive validity of vocational interest surveys suggests that in later phases of interest, a person can be expected to be more metacognitively aware and able to report on interest.

The fifth characteristic, that interest has a physiological/neurological basis, is important because it points to the association of interest with the reward circuitry in the brain. As noted earlier in this chapter, people are hardwired to develop interest, however, they need to be supported to find the connections to the content of interest worthwhile. In the earlier phases of interest development, support to trigger interest using novel information, promoting utility, and so forth, enables a person to make connections to content. Once interest is supported to develop, it becomes rewarding. Once interest has become rewarding, a person is in a position to self-trigger by identifying curiosity questions (problems that they want to solve) and seeking resources and opportunities to address them. Before interest has been triggered to develop, as well as in its early phases, those who are providing support for its development may need to employ related rewards in order to ensure that interest will develop.[2]

Interest Development in the Workplace

Interest in a career may be predicted on the basis of a person's existing characteristics or traits, and the triggering, development, and continued deepening of interest occurs through the interactions individuals have with the environment. The case of the engineer illustrates that employers and the workplace can support the development of interest, and also that they may contribute to the decline of interest. Research demonstrates that even individuals with more-developed interest need opportunities to continue to develop it

(Azevedo, 2013; Crowley, Barron, Knutson, & Martin, 2015; Renninger & Hidi, 2016); otherwise the activities that they were interested in may no longer be novel and challenging for them. The opportunity to continue to develop interest offsets the likelihood that employees will seek challenge and opportunity elsewhere.

Study of motivation in the workplace became an integral part of both vocational and industrial psychology in the mid-twentieth century (Vroom, 1964). Researchers asked questions about why people chose their jobs, why they stay in them, and how they perform. Concepts addressed included need, motive, goal, incentive, and attitudes. Vocational interest surveys were refined to identify the fit between individuals and their work. However, interest as a psychological state and the potential for interest to develop were not directly investigated, nor was the possibility that the fit between employees and their jobs could lessen.

In reviewing the quantitative literature, Nye et al. (2012) observed that despite its relation to workplace success, the employee selection literature has tended to overlook interest measures. Even in practice, the motivation provided by experiencing interest in the workplace has been considered only indirectly. For example, Kaye and Jordan-Evans (2002; Kaye, Jordan-Evans, & Career Systems International, 2014) identified the top 6 "stay factors" for people to continue in their jobs (see Figure 2.1). All of the factors, with the possible exception of fair pay, have interest as an underlying, and unidentified, component. They point either to the individual experience of interest or to the conditions that enable the experience of interest to be realized. The first and most influential factor (62% of 8,454 respondents), "exciting, challenging, or meaningful work," includes adjectives used to describe work that one is interested

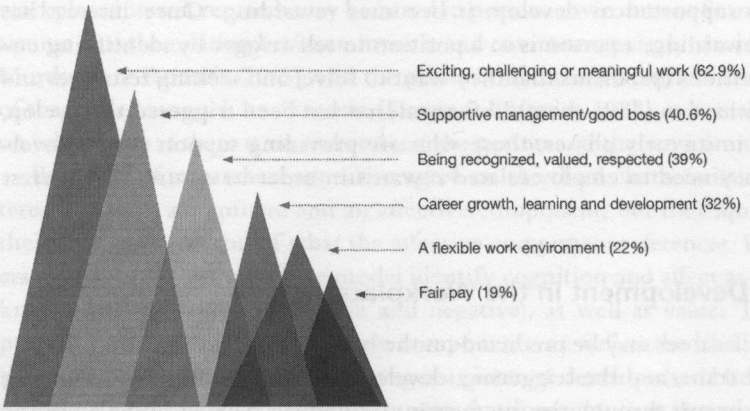

FIGURE 2.1 Top six "stay factors." Reprinted from, What Keeps You: A White Paper About Engaging and Retaining Talent (www.keepem.com/pdf/WKY_2014_pdf), with permission from Beverly Kaye, Sharon Jordan-Evans and Career Systems International.

to perform, and the experience that accompanies the psychological state of interest. This factor reflects interest that is maintained and is enabled to continue to develop.

The second factor, "supportive management/good boss," describes conditions that allow the development of interest to flourish, whereas the third factor, "being recognized, valued, respected," references the development of self-efficacy, which is coordinated with the development of interest. The fourth factor, "career growth, learning and development," points to developing content knowledge, which is critical to the continued development of interest and is useful for future goals. The fifth factor, "a flexible work environment," is another aspect of workplace conditions that provides support for a person to have their own ideas/needs and enables interest to continue to develop. Of note, the ranking of these factors was found to hold regardless of age, gender, position, industry, job function, geography, and company size (Kaye et. al., 2014).

It is possible, of course, for employees' initial interest in their jobs to fall off. This is a situation in which focusing on more than the latter phases of the four-phase model might be beneficial to understanding workplace interest. It seems very likely that when people lose their interest in the activity of their workplace, there are decreases in their job satisfaction and the quality and quantity of overall productivity. A decline in interest, or the onset of boredom, may well indicate that either they have the skills and capacity for the job, but find their activity boring and repetitive and do not experience interest in working with its content, or the conditions of their job have changed. As Renninger and Hidi (2016) concluded, if people's existing abilities to make connections to content are not aligned with available tasks and opportunities, this will very likely lead interest to fall off.

Examples of issues addressed in studies that focus on student interest, and inform the ways in which the four-phase model could contribute to the understanding of workplace interest, include the relations among conscientiousness, grit, and interest; social media and interest; and the role of other people in supporting the development of interest. We review this work briefly, pointing to its potential utility for understanding and enabling the development of interest in the workplace.

Conscientiousness, Grit, and Interest in the Workplace

Conscientiousness, grit, and interest have been associated with higher levels of individual effort and learning. Consider, for example, two lab technicians who are examining cells to detect those suspicious ones that may be signs of cancer. One finds a very unusual cell and marks it for the doctor to check it out. On finding the same atypical cell, the other technician goes to the medical library and, before handing over the findings to the doctor, tries to

identify the cell. Is the difference between the acts of the two technicians due to differences in their conscientiousness or in their levels of interests, or both?

Both conscientiousness and interest could be influencing how a lab technician reacts when finding suspicious cells, just as these two variables are likely to influence individuals' reactions to a multitude of situations. Trautwein, Lüdtke, Nagy, Lenski, Niggli et al. (2015) examined how interest and conscientiousness are related to academic effort using self-reports. They found in four studies involving over 2,500 students that conscientiousness and interest uniquely predicted academic effort. More importantly, the researchers reported that there was a significant compensatory interaction between the two predictors. That is, conscientiousness was especially important for students who were not interested in their school subjects, and domain-specific interest seemed to play an important role in motivating students who were low in conscientiousness.

If we that assume the same patterns established for academic interest among the three variables hold true for vocational interest, these findings have important implications for employers to consider. As Trautwein et al. (2015) point out, conscientiousness has been characterized as a domain-general trait; one of the five personality traits in the Big Five Model of personality (e.g., Digman, 1990). As such, conscientiousness is considered to be both stable and domain general, and it is not usually expected to develop. However, as Nye and Roberts (2013) point out, there are exceptions. If the workplace provides adults with support, they are likely to become more extroverted, emotionally stable, and/or conscientious (see Roberts & Mroczek, 2008; Roberts, Walton, & Viechtbauer, 2006).

On the basis of Trautwein et al.'s data, it might be the case that as long as conscientiousness is present, an employee will be productive. However, if an employee is low on conscientiousness, the employer might focus on how an employee's interest can be supported to develop. Related to discussions of both conscientiousness and interest is the construct of grit, defined by Duckworth, Peterson, Matthews, & Kelly (2007) as the passion and perseverance to obtain long-term goals. If people are not interested, grit, similarly to conscientiousness, may be essential to assure performance. However, when people are engaged in activities that they are interested in, grit, or perseverance (also described as self-regulation, see Sansone, 2009) is a component of their engagement. As Sansone, Thoman, and Fraughton (2015) noted, when a person lacks interest, self-regulation is a problem. When people are supported to develop an interest in some content, they persevere independently, and are self-regulated and fully engaged because they want to be, not because they have to be. The development of even some interest can have a beneficial impact on attention, goal setting, and learning strategies (Renninger & Hidi, 2019b).[3]

Social Media and Interest in the Workplace

Recent studies have also examined how participating in social media is related to students' school activities and how interest influences this relation. Investigations repeatedly indicated that academic engagement and performance are adversely affected by participation in social media that is not an assigned part of the class. For example, Duncan, Hoekstra, and Wilcox (2012) reported that in-class use of cell-phones reduces learning; several others have reported that social media in general interferes with academic performance (e.g., Fries & Dietz, 2007; Junco, 2011).

Flanigan and Babchuk's (2015) review of the widespread use of social media in academia found that whereas many studies have demonstrated that university students' access to technological distractions diminishes their learning and achievements, only a few considered students' own perceptions of their social media use. To address this gap in the literature, they conducted a qualitative (phenomenological) study of semi-structured interviews that focused on students' perceptions of the impact of social media on their educational experience. Participants reported that in their view, using social media during academic activities diminishes achievement, increases the amount of time it takes to complete tasks, and reduces how much information they retain from study and lecture sessions. Additionally, the students also noted that their own lack of situational and topic interest increased the temptations of social media.

In the workplace, the personal use of electronically mediated activities is referred to as cyberloafing or cyberslacking (see Baturay & Toker, 2015, for a review of the literature). Findings from this literature suggest that similar associations are identified for cyberloafing and workplace productivity as those of social media use in academic settings. Although we could not find any direct reference to interest in studies that investigated cyberloafing, researchers indirectly refer to the lack of interest as one of the underlying reasons for social media use—the reasons for cyberloafing include de-motivating jobs and poor employee–job fit leading to low-engagements. For example, Jian (2013) analyzed data from the Pew Internet and American Life Project's sponsored Networked Workers Survey (Madden & Jones, 2008) and concluded that job variety improves employee engagement and reduces personal use of online communications such as gambling, shopping, emailing, and social media use.

Several studies have examined the use of social media in the workplace and its effect on productivity. Based on surveys of employees in workplaces with internet connectivity, Munene and Nyaribo (2013) observed that there are potentially both positive and negative outcomes of using social media in the workplace. For example, seeking relevant information (like the conscientious and interested lab technician described above who researched the cell identified) can be beneficial to productivity. However, Munene and Nyaribo also reported that there were more negative than positive influences. They found

that employees spent most of the time on social media enhancing their personal networks, which, in turn, distracted them from work-related expectations.

To eliminate the negative effects of cyberloafing, employers can ban, control, or set limits on their employees ability to use social media. However, such restrictions may also have undesirable outcomes (Ugrin, Pearson, & Odom, 2007). As Garrett and Danziger (2008) observed: "Restricting personal Internet use may be an effective deterrent to cyberslacking.....it can [also] backfire by reducing job satisfaction and ...productivity" (p. 291). Flanigan and Babchuk's (2015) findings suggest that developing interest may be another way to reduce inappropriate use of social media. Importantly, their findings corroborate those of Trautwein and his colleagues (2015) who reported the potential utility of supporting interest to develop as a way to balance the impact of low conscientiousness and improve prospects for productivity.

The Role of Other People and Interest in the Workplace

Although there are instances in which environmental conditions result in the serendipitous triggering of interest (e.g., unintentional modeling of behavior by a person with whom the engineer has a connection; a person hears a new bird song and starts searching online resources on birds), other people's interactions with the person, as well as the conditions or design of the environment (e.g., work climate, software features) are primary sources of interest development (see Schneider, 1987). People are in a position to help adjust the way in which an individual engages with content, and are able to support changes in their engagement. Xu, Coats, and Davidson (2012), for example, reported that when teachers both have an interest in the discipline that they teach and have an interest in supporting their students to develop interest, the students do develop interest and also succeed. Employers need to understand that their employees' interest can be supported to develop (that interest is not simply a trait), and thus appreciate that they can provide support (e.g., encouragement, information) that could have a pivotal role in their employees' interest development. By doing so, such change may offset workplace difficulties such as employees who are lacking in conscientiousness or who are inclined to spend time on social media instead of on their work.

If we reexamine the reasons for individuals staying in their jobs (Figure 2.1), two of them (supportive management/good boss [40.6%] and being recognized, valued, respected, [39%]) demonstrate the importance of others to workplace satisfaction. In school settings, Bergin (2016) described social influences as one of the important sources of more-developed individual interests. In his review, Bergin identified parents, friends, and affinity groups among those who can contribute to social experiences leading to triggering and supporting students' interest. He noted how social influences affect students' interest, and maintained that students' need to belong leads them to seek social links that influence the development of their individual interest. Although Bergin did not

discuss social influences on interest development in the workplace, his notion that social influences can nurture interest development should also be relevant to this setting. Both employers and coworkers are likely to be in the position to provide triggers and support for interest development.

Summary and Conclusions

In this chapter, we have described how vocational interest maps onto later phases of interest development and pointed to the utility of employers understanding that their employees' interest can be supported to develop. We have suggested that if interest can be supported to develop, grit and self-regulation become components of their activities, and this can compensate for lack of conscientiousness if it is present. We also note the beneficial impact of interest on attention to the workplace and the negative effects of social media and distraction. Finally, we point to the importance of other people in encouraging the development of interest.

There are also a number of unresolved questions. For example, we wonder if the successful prediction of fit by vocational interest measures would be strengthened if distinctions between the last two phases in the development of interest were considered? That is, does the predicted fit between person and environment based on vocational interest measures vary if a person has an emerging individual interest, rather than a well-developed individual interest (see Table 2.1). According to the four-phase model, the difference between these two phases is in the person's capacity to persevere in problem solving despite frustration, and his or her vision of what can be achieved. In contrast to consideration of vocational interest as trait-like, we describe the effectiveness of supports for interest to develop. For educational contexts, and we would argue for the workplace as well, the fact that interest is malleable—that it can be supported to develop—is critical. Its malleability suggests that investing effort in supporting interest to develop will yield results that make this investment worthwhile.

Research such as this is as central to researchers and practitioners working with the four-phase model as they are to those concerned with vocational interest. It is our sense that the integration of research on the four-phase model with that on vocational interest is overdue, and that it could be relatively easy to accomplish. The integration of these two lines of study has the potential to clarify understanding of interest and its utility in the workplace.

Notes

1 Our conceptualization of triggers for interest differs from Goldsmith and Reiter's (2015) in that they speak of triggers for behavior, whereas we refer to triggers for interest, resulting in an information search related to a specific mental activity.
2 Findings from neuroscience provide evidence that people are hardwired to develop interest and that once interest is developed it becomes its own reward (e.g., Gruber, et al., 2014; Panksepp, 1998). However, rewards are needed to support engagement

when an individual does not have interest, as Hidi (2016) points out. This is a point that is consistent with findings from self-determination theory, although it has not been emphasized in that literature (see Deci, 1971; Marsden, Ma, Deci, Ryan, & Chiu, 2014; Ryan & Deci, 2017).

3 As noted earlier in this chapter, developments in motivation research and in neuroscience have now made it clear that people (including employers, parents, teachers, etc.) need to recognize that we are all hardwired to develop interest (that activates the reward circuitry in the brain) and that all people, regardless of age or previous experience, may be supported to develop interest—and also that interest needs support to develop, especially in its earliest phases.

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