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Self-Efficacy and Externality in Adolescence: Theoretical Conceptions and Measurement in New Zealand and German Secondary School Students

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It is argued that the development of self-efficacy represents a central aspect of development in adolescence for 3 reasons. First, self-efficacy is an important predictor for actual efficacy and, thus, is a major component of the individual's ability to act successfully. Second, self-efficacy is a major action-guiding aspect of the self-concept. Third, both aspects can be combined in an action model of personality, which provides the framework for the development of a standardized questionnaire for self-efficacy and externality from a personality psychology point of view. To validate this questionnaire, a study was conducted with 215 New Zealand and 221 German secondary school students ages 16 to 17 years using a German and an English version of the inventory. Item parameters as well as scale parameters of the English and the German versions of the inventory, were satisfactory and comparable. First validity analyses reveal no significant scale differences for girls versus boys; no sig-

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nificant scale differences between New Zealand and German adolescents; and some rather weak, but significant, positive correlations of self-efficacy to academic performance and perceived classroom climate.

The purpose of this investigation is twofold. First, a theoretical argument is presented that self-efficacy represents one of the core aspects of development in adolescence. Second, results from a cross-cultural study on self-efficacy and externality of adolescents from Germany and New Zealand are presented to validate a standardized research instrument.

In the first part of this article, three reasons for our theoretical position are discussed. First, self-efficacy is a central predictor of intentions and, hence, of behavior (Ajzen, 1991, 1996; Krampen, 2000). Moreover, because individual perceptions of their own competencies and power (i.e., self-efficacy) must not completely diverge from their actual efficacy, the development of self-efficacy reflects, at least to a certain degree, the development of actual capacity to act autonomously and efficiently. The development of personal action competence is the necessary prerequisite for success in the adult's life in modern societies, and it is central to a person's self-regulation of his or her own development (Brandtstädter, 1998). Second, the self-perception of personal efficacy (i.e., self-efficacy) is a core aspect of the individual's self-concept. Actually, the development of a differentiated and integrated self is certainly one of the most important developmental tasks of adolescence (Garcia, Hart, & Johnson-Ray, 1997; Harter, 1990, 1998; Petersen, 1988; Petersen & Leffert, 1995; Pinquart & Silbereisen, 2000; Silbereisen & Noack, 1988; Waterman, 1993). Thus, the self-concept of one's own competencies and capabilities is, as it were, an "interface" between the developing person and his or her development (Brandtstädter, 1999).

Third, and most important with respect to our investigation, both perspectives (the development of the capability to act and the development of the self-concept with respect to one's efficacy) can be fruitfully combined to form a central aspect of personality development during adolescence. As an attempt to integrate an action-theoretical perspective on development and the action-guiding function of the self into a concept of personality, the action-theoretical model of personality (AMP; Krampen, 1988, 2000) is presented.

The second part of this article deals with one central empirical challenge that follows from the theoretical position defended so far. In particular, one implication of this theoretical approach is that (dispositional) self-efficacy has to be assessed reliably and validly. Thus, a questionnaire is introduced that attempts to assess self-efficacy and externality according to the theoretical position outlined. An application of this measure to an important social developmental context of adolescents (i.e., school) indicates that it is a useful tool in understanding the central importance of self-efficacy in adolescent development across different cultural contexts.

SELF-EFFICACY AS A CENTRAL DEVELOPMENTAL TASK OF ADOLESCENCE: TOWARD A DEVELOPMENTAL PERSPECTIVE ON PERSONAL CONTROL

Without doubt, the major feature of the second decade in our lives is that it is a phase of individual and social consolidation. Viewed from a life-span perspective for adolescence (Lerner, 1987), the various developmental tasks addressed during adolescence can all be seen as part of the metatask of preparing for adulthood (Crockett & Crouter, 1995). Coping with physical changes and sexual maturation, developing interpersonal skills (e.g., relationships with the opposite sex), acquiring education, and particularly forming a personal and social identity are storms to be weathered during adolescence. Successfully negotiating these developmental challenges prepares young people for solving the tasks and meeting the demands of adult life (Petersen, 1988; Petersen & Leffert, 1995). As a consequence, adolescence is a period of transition that is rarely straightforward and is usually perplexing and disquieting both for the juveniles and for the adults around them (Compas, 1995; Hauser & Bowlds, 1990).

This developmental transition has, as it were, two faces. On one hand, adolescents have to develop certain competencies and metacompetencies that enable them to become the "producers of their own development" (Featherman & Lerner, 1985; Lerner & Busch-Rossnagel, 1981). From an action-theoretical perspective on development (Brandtstädter, 1998, 1999), the major developmental task of adolescence is to achieve the prerequisites for the active regulation of one's own path of life. This includes not only achievement of certain competencies (e.g., education) and social integration (e.g., acquisition and acceptance of sufficient social support as well as assimilation of social norms), but also the development of metacompetencies; in particular, the ability to actively shape one's own personal development by planning and goal setting. In short, during adolescence, the cognitive and behavioral preconditions for a successful pursuit of one's personal goals have to be developed (Greve, in press).

On the other hand, the individual has to reconcile the developmental task of autonomy with the task of social integration; that is, with the acceptance of social norms and the achievement of certain social roles and positions. Because social roles include behavioral prescriptions and restrictions, social integration entails limits to autonomy. Moreover, this tension must be integrated into the individual's self-concept; that is, into a differentiated and coherent concept on who the person is as a social and individual being. The core of this developmental task is represented by the task of developing an adequate self-conception of one's personal ability to act autonomously.

Self-Development: The Inside of Adolescent Development

Actually, the most important precondition for human action is the acting person. In particular, objective ability has to be accompanied by perceived autonomy to lead to performance. This entails a personal belief in one's self-efficacy; that is, the control over one's behavior, life, and future (Taal & Samaio de Carvalho, 1997).

Hence, most theories of action include beliefs of personal control as a core explaining variable (e.g., Ajzen, 1996). Consequently, the development of a sense of personal autonomy is a central task during adolescence (Petersen & Leffert, 1995). This is a vital precondition necessary for the individual to be able to act. To select goals, decide for means, and accept or reject values and norms, one has to have an *identity*; that is, a differentiated and integrated system of self-describing and self-evaluating beliefs (Greve, 2001). This is why establishing a stable integrative identity is usually viewed as the central developmental task in a person's youth (Harter, 1990, 1998).

To fail in this task represents a major risk factor for deviant and delinquent developmental pathways in adolescence (Greve, in press). However, self-development is a difficult task: "'In search of self' ... defines a major drama that unfolds on center stage during adolescence, with a complicated cast of characters who do not speak with a single voice" (Harter, 1990, p. 353; see also, Petersen, 1988; Petersen & Leffert, 1995; Silbereisen & Noack, 1988; Waterman, 1993). However, whatever adaptations, upheavals, transitions, and other changes the individual goes through (i.e., in whatever way the person develops), it is important that he or she maintains and experiences a feeling of biographical continuity (Brandtstädter & Greve, 1994). One specific and central aspect of self and identity is one's personal experience of being an actor; that is, self-efficacy. Both from an action-theoretical perspective and a personality point of view, this is a major factor that produces continuity and stability of individuals across situations (Cervone, 1997).

Personality Development: The Outside of Adolescent Development

The successful accomplishment of the developmental task of social integration requires not only the achievement of individuality and autonomy, but also a sufficiently predictable social environment. Actually, the interaction between the individual and his or her social environment is the "motor," as it were, of adolescence (Lerner & Galambos, 1998). "Successful adaptation always involves appropriate coordination between our changing selves and our changing contexts. But it is in adolescence, and particularly early adolescence ... that such adaptational stresses may be most critical, due to their simultaneity and multidimensionality" (Lerner, 1982, p. 361).

In short, the developing personality has to reach a certain degree of stability and reliability during adolescence. Beyond adolescence, the person has his or her personality, as it were. An adult is provided with a set and a profile of attributes, competencies, traits, and dispositions that characterize him or her across various situations and social contexts as the person. At the same time, these competencies are necessary to enable the person to act and react flexibly, that is appropriately, in a particular situation. This is precisely why the individual's self-concept has to reflect a person's competencies, dispositions, and deficits (i.e., personality) sufficiently (Ryan, 1991) and what makes the self the "interface" between personality, action, and development (Brandtstädter, 1999).

Social-cognitive as well as action-theory based models of individual differences and personality share, as central axioms, that self-efficacy beliefs and internal–external locus of control beliefs have great importance in predictions and explanations of experiences; intentions; and, thus, behaviors. Their common foundations are motivation and action theories—primarily those of the expectancy-value type that describe, reconstruct, and predict action with reference to subjective valencies and expectancies. Reviews of these theories reveal not only broad empirical evidence for their hypotheses, but also a high convergence of theoretical approaches in psychology to their central statements (e.g., see Ajzen, 1996; Atkinson, 1964; Feather, 1982; Krampen, 1982, 2000).

Several important differentiations of the basic expectancy-value constructs must be noted (see also Figure 1). The differentiation of competence and contingency expectancies can be found in the models of Bandura (1977, 1982, 1986), Skinner (1985), and Weisz (1983). Outcome-consequence expectancies (instrumentalities) have been extensively described in instrumentality-theoretical approaches (e.g., Mitchell & Biglan, 1971; Vroom, 1964). Situational expectancies, which refer to the expectancy of certain outcomes/events without own action, were established in cognitive models of achievement motivation (e.g., Heckhausen, 1977, 1989). Together, with the valence of outcomes/events and their consequences, these various expectancy constructs constitute an elaborated predictive model for action intentions and, thus, for actions. It is worth noting that all of these constructs are explicitly defined in a situation- and action-specific manner (e.g., Ajzen, 1996).

However, the social-learning theory of personality (Rotter, 1955, 1982) is the only expectancy-value approach that includes personality variables. Rotter (1982) described a list of generalized expectancies (e.g., internal vs. external locus of control of reinforcement, interpersonal trust, problem-solving strategies) and formulated the hypothesis that in "relatively novel situation(s) a person's expectancies would be largely a function of such generalizations" (p. 92). Thus, the subjective perception of the action or life situation of the agent is crucial. In relatively novel or ambiguous (ill-defined) situations, personality variables are primarily predictors of personal intentions (generalized expectancies), whereas in known, well-defined situations, situation-specific cognitions and evaluations (expectancies and reinforcement values or valencies) are the best predictors of intentions. However, Rotter (1982, 1990, 1992) restricted himself—even in newer publications—to a pure listing of various constructs of generalized expectancies without specifying their relations to the situation- and action-specific constructs of social-learning theory or, more generally, those of expectancy-value theories. To predict and explain individual behavior in certain situations or contexts, and in particular, to develop and apply measures of these theoretically deduced centralaspects of personal development, a model of personality is required that essentially incorporates action-theoretical aspects.

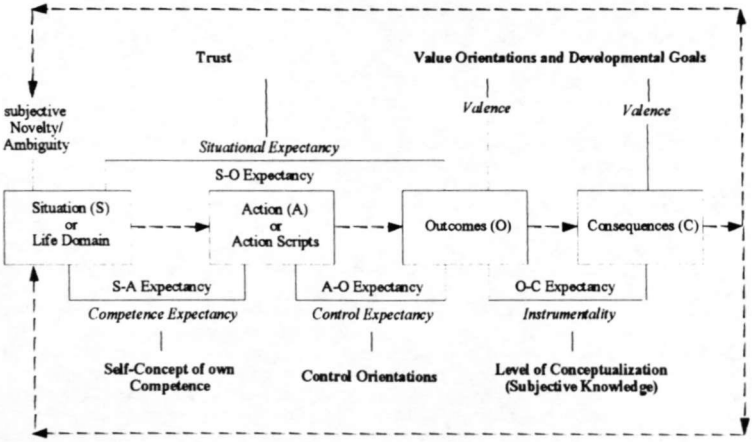

Figure 1. Differential expectancy-value model associated with action-theoretical personality variables (modified from Krampen, 1988, p. 42, Figure 1).

THE AMP

The AMP (Krampen, 1988, 2000) further develops and differentiates Rotter's (1955, 1982) approach with respect to this particular juncture. The AMP starts from the differentiated expectancy-value model (presented in the inner part of Figure 1). Its basic axioms conform to those of Rotter's (1972) social-learning theory and partially to those of Rychlak's (1982) logical-learning theory. It is worth noting, however, that the proposed AMP does not claim to be a comprehensive personality model (e.g., most factor-analytically derived ones). Rather, it is a partial model that supplements and differentiates other personality models in those cases in which human actions, action scripts, action-related cognitions, motivations, and emotions are involved.

Action-Theoretical Personality Variables

A central assumption in the AMP is that each situation- and action-specific cognition or evaluation of the differentiated expectancy-value model, or both, is potentially generalized over time and across situations. These generalizations depend on experiences in sufficiently similar situations and result in the development of

personality variables that are relatively stable across situations and time; thus, establishing interindividual differences. The following deductions constitute the AMP (see Figure 1):

1. *Situational expectancies* refer to the expectation of situational outcomes without the need for any action on the part of the individual, are generalized to an orientation across situations and time that positively valued events will occur (or that negatively valued events will be prevented) without own action. The person who has an expectation that positively valued events will occur has a high level of trust (vs. mistrust) in situational dynamics and forces, which include social as well as physical factors. Although there is some overlap between earlier conceptions of trust—such as, psychoanalytic approaches (Erikson, 1968), social psychological approaches (Lerner, 1980; Marsh, 1977), and the social-learning theory (Rotter, 1967, 1982)—the definition of trust within the AMP is more specific because it is deduced merely from situational expectancies. In particular, it explicitly excludes control orientations (Lerner, 1980; Wrightsman, 1974).

2. *Situation-action/competence expectancies* refer to the situation-specific expectation that one can choose voluntarily between two or more action alternatives, or that there is at least one action possibility at one's disposal, are generalized to self-concepts of own competence. A high self-concept of own competence refers to the belief that a person subjectively perceives him- or herself as competent in various situations. Low self-concept refers to the generalized belief that in many situations there is only one, or no, action possibility. This definition is in agreement with the concepts of self-efficacy (Bandura, 1977, 1982), perceived behavioral control (Ajzen, 1991), and political efficacy (Balch, 1974). Supporting the notion of such generalizations, Cervone (1997) argued recently that cross-situational coherence in perceived self-efficacy may occur despite intraindividual variations between various situations.

3. *Action-outcome/control expectancies* refer to the controllability of outcomes and are generalized to control orientations. Rotter's (1966, 1982) concept of internal versus external locus of control of reinforcement was closest to this personality variable. However, construct differentiations and specifications proposed by Bandura (1977, 1986), Weisz (1983), and Skinner (1985, 1996) were considered in the AMP definition. Control orientations refer to contingency expectancies and not to competence expectancies of self-efficacy.

4. *Outcome-consequence expectancies/instrumentalities* are generalized to a person's subjective knowledge about the dynamics of situations and his or her subjective competence to predict (multiple) consequences of action outcomes or events. Whereas this personality variable is similar to general conceptions of

ceptions of problem-solving competence and intelligence, within the AMP it is named *level of conceptualization* because it refers mainly to the subjective level of beliefs (and not performance). Perhaps it is best described in terms of subjective environmental theories, which constitute, together with the subjective theories of the self, the subjective theory of reality of individuals (see Epstein, 1973).

5. *Valencies* of outcomes and their consequences, which are related to situations or situation-specific actions, are generalized to the basic value orientations of the individual. Rotter's (1955, 1982) need values and the terminal values, described and listed by Rokeach (1973), were in accordance with this AMP definition, as are the general notions of the theoretical approach toward a theory of goals by Pervin (1983). However, it is worth noting that the AMP conception of value orientations includes not only terminal values and generalized action goals, but also emotionally, socially, and culturally mediated valuations. In this way, cognitive, motivational, actional, social, and emotional aspects of the human life are integrated into a conception of personality that is similar to Pervin's (1983) definition of personality of an "integrative, holistical concept involving an overall structure which changes according to internal and external demands while retaining its inherent qualities" (p. 45).

STRUCTURE OF ACTION-THEORETICAL PERSONALITY VARIABLES

To move one step further to an empirical investigation of this action-theoretical model of the development of self and personality, the hierarchical structure of the AMP variables must be considered in more detail. Actually, the difference between situation- and action-specific personal variables on one hand and action-theoretical personality variables on the other hand must be seen as continua rather than as dichotomies. Weisz (1983) illustrated this for the special case of controllability and generalized perceptions of control. At one extreme, there are broad questions about whether life is working out the way one wants (generalized perception of control), and at the other extreme there are questions for specific task or activity judgments (controllability). In between, there are moderately general or domain-specific self-perceptions summing up several situation/action-specific questions about one's life sphere or domain. Up until now, cognitive approaches to personality were restricted mainly to investigating the extreme of situation specificity. Empirical research on locus of control, self-concept, and value orientations has been mainly restricted to the extreme of high generalization. However, in some publications, an approximation to domain-specific measurement is evident (e.g., Bandura & Cervone, 1983; Lachman, 1986).

With reference to the structural organization of personality, several levels of generalization can be distinguished (Krampen, 1988). The lowest level refers to the situation- and action-specific person variables. Higher levels refer to domain-specific person variables or to the generalized (personality) variables, respectively. The most general level refers to the total system of action-theoretical variables. At this level, this partial model is open to additions from other global personality models and personality variables (e.g., neuroticism, extraversion, etc.).

As in social-learning theory, in the AMP, it is assumed that domain-specific variables are the product of generalization across situation- and action-specific experiences and that generalized variables are the product of generalization across experiences in various life domains. This assumption holds for all action-theoretical cognitions as well as evaluations. The development of the action-theoretical personality variables is attributed to learning processes based on specific person–situation interactions. This is in agreement with an action-theoretical perspective in the study of life-span development (see Brandtstädter, 1984, 1998; Brandtstädter, Krampen, & Heil, 1986; Chapman, 1984). With reference to Piaget's (1954) analyses of the construction of reality by the child and adolescent, it must be assumed that this generalization of experiences in person–situation interactions will not be a continuous (linear) learning process, but a process that is accompanied by discontinuities, overgeneralizations, and regressions. Weisz (1983) described this for the development of competence and contingency judgments (and their generalization) in childhood, and Fiedler (1985) described it for adulthood. Thus, the hierarchical conception of action-theoretical person variables with different levels of generalization integrates views about the consistency (higher levels) and variability (lower levels) of person and personality variables (see Pervin, 1983, 1985; Roberts & Nesselroade, 1986; for a more elaborate discussion, see Krampen, 1988, 2000).

Self-Efficacy As the Core Aspect of an Actional Perspective on Self and Personality: Need for a Standardized Measure

Both expectancy and value facets of the AMP (as well as other expectancy-value approaches) contribute to the conceptual decomposition (and, thus, prediction) of (specific) intentions, (general) goals, and (global) values only under conditions of sufficient perceived individual control. A person will only intend—and, hence, attempt—to do what he or she believes will bring about what he or she desires if that person also believes that he or she is able to initiate and to perform that particular behavior. Thus, the individual's self-concept of personal control (i.e., self-efficacy) becomes a core concept both of expectancy-value models of intention (and behavior) and of action-theoretical approaches on development. As a consequence, the assessment of the various specified levels of self-efficacy becomes a crucial step toward the empirical corroboration of an action-theoretical model of the development of self and personality, particularly during adolescence.

Recent discussions of control and self-efficacy (e.g., Krampen, 1982, 2000; Skinner, 1996; Skinner, Chapman, & Baltes, 1988) have been in clear contrast to the development of standardized, psychometrically tested and coherent inventories for their measurement. In particular, these constructs are still not integrated in personality inventories; that is, there are no subscales measuring control beliefs or self-efficacy in NEO–FFI, MMPI, CPI, 16 PF, and so on. International research is dominated by ad hoc instruments, which are changed frequently in item contents, item number, answer format, and so forth between different empirical studies. This is particularly true for self-concepts of competence, control, and self-efficacy in adolescence. Although empirical relations between self-efficacy and decision making (Taal & Samaio de Carvalho, 1997), leadership aspirations (Singer, 1990), risk behavior (Murphy, Roteram-Borus, & Reid, 1998), prosocial behavior (Chase-Lansdale, Wakschlag, & Brooks-Gunn, 1995), emotional reactions (McCauley, Lerner, Lerner, & von Eye, 1999), social adjustment (Connolly, White, Stevens, & Burstein, 1987), and problem-solving interactions in families (Jory, Xia, Freeborn, & Greer, 1997) are frequently investigated and well documented in the literature, an integrative approach—both from an empirical and a theoretical perspective—is still lacking. Moreover, heterogeneous and inconsistent assessments of self-efficacy make literature reviews and meta-analyses difficult. This may become an obstacle for research on control and self-efficacy beliefs as well as for the integration and implementation of such constructs in applied psychology.

MEASUREMENT OF THE ACTION-THEORY PERSONALITY VARIABLES OF SELF-EFFICACY AND EXTERNALITY IN EDUCATIONAL AND DEVELOPMENTAL PSYCHOLOGY CONTEXTS

Within the theoretical framework of the AMP, a questionnaire of self-efficacy and generalized externality was developed, psychometrically tested, and standardized for Germany (*Fragebogen zu Kompetenz–und Kontrollüberzeugungen,* FKK; Krampen, 1981, 1991). With reference to the differentiation between internality, powerful others' control, and chance control (Levenson, 1973, 1981), this inventory includes, on its primary level of measurement, scales measuring generalized internality (I), powerful others' control (P), and chance control beliefs (C) as well as a scale measuring the self-concept of own competence (SK). Each of the primary scales are combined on the secondary level of measurement to form scales assessing self-efficacy (SKI = SK + I) and generalized externality in locus of control (PC = P + C). Item contents, instruction, and answer format of the FKK allow applications from adolescence (from 14 years) to late adulthood. Objectivity, reliability, and validity of the FKK are confirmed in studies with various German samples (Krampen, 1991) as well as broad applications in psychological research

(e.g., see Bilsky & Hosser, 1998; Gomez, Zimmermann, Fröhlich, & Knop, 1994; Kirschbaum et al., 1995; Korunka, Zauchner, Litschauer, & Hinton, 1997; Lasar, 1997; Marz, Dickenberger, Betsch, & Siebler, 1996; Prüssner et al., 1997; Weber & Anderle, 1997).

The first objective of our study is the development and empirical test of an English version of this standardized inventory. The second aim of our study is an application of this inventory to an important adolescent developmental context. In educational psychology, there is a strong research tradition concerning the relations of control and self-efficacy expectancies to academic achievement. In a recent meta-analysis, Kalechstein and Nowicki (1997) concluded that there are significant and consistent correlations between academic achievement and internality—supporting the findings of earlier reviews. In no instance do specific control expectancies predict academic achievement better than generalized ones.

Interestingly, the control expectancy—an academic-achievement relationship—was not moderated by gender. However, individual age moderated the relation such that it was similar and significant for elementary school students and college students but significantly greater for secondary school students. Therefore, this study refers to secondary school students and includes indicators of academic achievement, academic-achievement motivation, and classroom-environment perceptions of students. In addition, the German sample was asked about their subjective personal problems and subjective problems experienced in school as well as perception of social support from teachers, family members, and peers.

EMPIRICAL STUDY

Participants

Questionnaire data were gathered in samples of 215 New Zealand and 221 German secondary school students (aged 16 to 17 years). Distribution of age and sex (121 girls from New Zealand and 125 girls from Germany) were comparable in the two samples.

Method

Data were gathered with the German and English versions of the FKK (Krampen, 1991). The English version was called the Inventory for the Measurement of Self-Efficacy and Externality (I–SEE; items are presented in Table 1). Participants were instructed to respond to statements by marking the symbol that best corresponded to their personal opinion. Answer categories were "strongly" (+++), "moderately" (++), or "slightly" (+) agree versus "slightly" (-), "moderately" (- -), or "strongly" (- - -) disagree with each of the 32 statements (see Table 1). On the

TABLE 1

Items and Item Scale Assignment With Positive (+) and Negative (-) Scoring As Well As Item Difficulty (p^i) and Item Total Correlation (r^{it}) of the Self-Efficacy and Externality Scales in Samples of New Zealand and German Adolescents

			New Zealand[a]		Germany[b]	
Item No.	Item	Scale	p^i	r^{it}	p^i	r^{it}
1.	Whether or not other people respect my wishes is mostly up to me.	SKI+	.30	.28	.55	.46
2.	To a great extent my life is controlled by accidental happenings.	PC+	.32	.36	.47	.51
3.	I feel like what happens to me in my life is mostly determined by powerful people.	PC+	.28	.42	.45	.47
4.	Sometimes I feel I have no ideas and don't want to do anything.	SKI-	.43	.35	.41	.31
5.	Whether or not I have an accident depends entirely on my behavior.	SKI+	.54	.10	.46	.41
6.	When I make plans, I am almost certain to make them work.	SKI+	.79	.42	.67	.35
7.	Often there is no chance of protecting my personal intersts from bad luck happenings.	PC+	.46	.41	.41	.48
8.	I don't like ambiguous situations, because I don't know how to behavior or what to do.	SKI-	.51	.31	.42	.58
9.	When I get what I want it's usually because I'm lucky.	PC+	.30	.39	.58	.49
10.	Other people often prevent my plans from becoming reality.	PC+	.36	.48	.39	.30
11.	I can do a lot to protect myself from disease.	SKI+	.82	.35	.61	.51
12.	I often don't know what to do to make my wishes come true.	SKI-	.56	.38	.43	.63
13.	Much of what happens to me in my life is a matter of coincidence.	PC+	.32	.49	.41	.46
14.	My life is chiefly controlled by powerful others.	PC+	.23	.53	.44	.33
15.	Whether or not I have an accident is mostly a matter of luck.	PC+	.34	.41	.32	.36
16.	I know many ways of protecting myself from disease.	SKI+	.83	.43	.68	.62

TABLE 1 (cont.)

Item No.	Item	Scale	New Zealand[a] p^i	New Zealand[a] r^{it}	Germany[b] p^i	Germany[b] r^{it}
17.	I have little chance of protecting my personal interests when they conflict with those of other people.	PC+	.38	.45	.24	.44
18.	It's not wise for me to plan too far ahead because many things turn out to be a metter of good or bad luck.	PC+	.44	.47	.45	.47
19.	Getting what I want requires pleasing those people above me.	PC+	.48	.55	.60	.41
20.	In unclear or dangerous situations I always know what to do.	SKI+	.64	.40	.63	.30
21.	It is sheer coincidence when somebody else ever considers my wishes.	PC+	.31	.47	.28	.57
22.	My well-being depends to a great extent on the behavior of other people.	PC+	.34	.37	.43	.42
23.	I can pretty much determine what will happen in my life.	SKI+	.47	.28	.64	.36
24.	Sometimes I just don't know at all what to do in a given situation.	SKI-	.50	.45	.48	.52
25.	I am usually able to protect my personal interests.	SKI+	.87	.44	.78	.36
26.	Whether or not I have an accident depends to a large extent on the behaviors of others.	PC+	.39	.34	.41	.49
27.	When I get what I want, it's usually because I worked hard for it.	SKI+	.90	.21	.79	.59
28.	I can usually think of many alternative ways of dealing with even difficult situations.	SKI+	.48	.49	.64	.60
29.	In order to have my plans work I make sure that they fit in with the desires of people who have power over me.	PC+	.52	.37	.49	.44
30.	My life is determined by my own actions.	SKI+	.92	.40	.58	.51
31.	Whether I fall ill or not is a matter of fate.	PC+	.50	.27	.42	.34
32.	I can usually think of many ways of solving my problems.	SKI+	.83	.54	.70	.38

Note: SKI = self-efficacy (underlined stock = self-concept of own competence and underlined I = internality); PC = externality (underlined P = powerful others control and underlined C = chance control.

[a] $N = 215$. [b] $N = 221$.

primary level, this inventory measures the SK, I, P, and C. On its secondary level, such scales are combined to more general scales measuring SKI and PC (for item-scale assignments, see Table 1).

For validity analysis purposes, generalized externality in locus of control was measured using the English and German versions of the unidimensional Nowicki–Strickland Locus of Control Scale (NS–LOC; Nowicki & Strickland, 1973; Schneewind, 1989).

School certificate results were obtained in the New Zealand sample for English education from school records from the previous year and in the German sample for German education (as measures of previous academic achievement). School motivation was measured by an indicator of the need value (in terms of Rotter, 1955, 1982) of good marks in English education (New Zealand sample) and of good marks/grades in general (German sample) using 5-point scales (in which high numerical scores indicate *high need values*.

Five scales from the Classroom Environment Scales (CES; Tricket & Moos, 1973, 1974; see also, Nielsen & Kirk, 1974) were used. They ranged from 1 (competition; CES C = how much students compete with each other for grades and recognition, and how hard it is to achieve good grades), to 2 (order and organization; CES OO = the emphasis on students behaving in an orderly and polite manner and on the overall organization of assignments and classroom activities), to 3 (rule clarity; CES RC = the emphasis on establishing and following a clear set of rules and on students knowing what the consequences will be if they do not follow them; the extent to which the teacher is consistent in dealing with students who break the rules), to 4 (teacher control; CES T = how strict the teacher is in enforcing the rules, the severity of punishment for rule infractions, and how much students get into trouble in class), to 5 (affiliation; CES A = the level of friendship students feel for each other, as expressed by getting to know each other, helping each other with homework, and enjoying working together). The Involvement Scale (CES–I) of the CES instrument, which measures the "extent to which students are attentive and interested in class activities, participate in discussions, and do additional work on their own" (Tricket & Moos, 1974, p. 2), was adapted, by changing statements into "I" statements, to obtain a measure of engagement or self-reported motivated classroom behavior. In addition, some of the wording of other CES items was changed to make the items more appropriate for the New Zealand sample (e.g., using *marks* instead of *grades*; see Fraser, 1982). The German sample filled out the German version of the CES (Humpert, Tennstädt, & Dann, 1987). The items were presented in the same sequence in which they appeared in the original full instrument. A high numerical score on each scale means a high level of that measure.

In the New Zealand sample, additional data were gathered on (a) teacher ratings of participation (rating of the level of participation of each student on a scale from 1 to 7—where 7 indicates a [*high level of classroom participation*]) and (b) task

completion. This measure of task completion was obtained by counting the number of Year 12 English assignments the student completed to the time of testing and how many of these were completed on time. This is reported in percentage completion rate.

In the German sample, additional data gathered were the (a) subjectively experienced personal problems, (b) subjectively experienced problems in school, (c) perceived social support given by teachers, (d) perceived social support given by the own family, (e) perceived social support given by peers, and (f) social desirability (Crowne & Marlowe, 1960; Lück & Timaeus, 1969). Experienced problems were measured by a checklist, including 14 possible personal problems (e.g., "I have problems with my best friend" and "I have problems with my body and attractiveness") and 9 possible school problems (e.g., "I have problems with a teacher" and "I have problems with bad grades"). Perceived social support was measured by 7-point ratings of help and support experienced by teachers, family members, and peers (1 = never/none; 7 = very often/very much).

RESULTS

Psychometric Evaluation of the I–SEE

Item parameters of the I–SEE from the New Zealand and the German samples are presented together with all items and item-scale assignments, including scoring in Table 1. Parameters of item difficulty range between .22 and .93 ($M = .51$) in the New Zealand and .23 and .80 ($M = .51$) in the German sample, indicating that they are satisfactory and highly comparable. This is confirmed by the Spearman rank correlation, $r = .73$, $p < .01$, between the two national rank orders of item difficulties. With one exception, all item-total correlations for the I–SEE measurement at the secondary level proved to be significant, again, in both samples. However, there are national differences in their range (New Zealand sample between .09 and .56; German sample between .29 and .64) and in some of their variations between the same items. Item-total correlations tend to be numerically higher in the German sample, which is confirmed by their means (New Zealand sample: $M = .39$; German sample: $M = .45$), but without a significant mean difference, $|dz| = .07$, $p > .10$.

As a consequence of the lower item-total correlations in the New Zealand sample, coefficients of internal consistency (Cronbach's alpha) of the Internality Scale (I) turned out to be too low (New Zealand sample: $r = .43$; German sample: $r = .68$). This holds also for the reliability of scale differences in the New Zealand sample at the primary level of measurement of the I–SEE (New Zealand sample: $r = .49$; German sample: $r = .62$).

Therefore, all analysis results on the I–SEE presented refer to the secondary level of measurement; that is, the I–SEE Scales on SKI and PC. Reliability coefficients of these two secondary-level scales are satisfactory in both samples. Both

TABLE 2

Correlates of Measures of Self-Efficacy (SKI) and Externality (PC) in Samples of New Zealand and German Adolescents

	New Zealand[a]		*Germany*[b]	
Measures	*Self-Efficacy*	*Externality*	*Self-Efficacy*	*Externality*
Nowicki-Stricland I-E Scale	-.38**	.45**	-.15*	.63**
Need value of school mark/grade	.16*	.01	.32**	-.16*
Task completion (English education)	-.02	.04	-	-
Participation activity (teacher rating)	.05	-.08	-	-
School certificate results	.11	-.13	.22**	-.11
CES-I/E: Involvement/engagement	.21**	-.18**	.20**	-.15*
CES-A: Affiliation	.12	-.06	.05	-.09
CES-T: Teacher control	.10	-.01	.04	.03
CES-RC: Rule clarity	.18**	-.08	.21*	-.12
CES-OO: Order and organization	.08	-.04	.13	.00
CES-C: Competitiveness	.01	.03	.07	.05
Subjective personal problems	-	-	-.16*	.28**
Subjective school problems	-	-	-.07	.25**
Perceived teacher support	-	-	.04	.04
Perceived family support	-	-	.09	-.02
Perceived peer's support	-	-	.24	-.03

[a] $N = 215$. [b] $N = 221$.
** $p < .01$; * $p < .05$.

scales proved to be sufficiently reliable (self-efficacy: alpha (G) = .72, alpha (NZ)= .79; externality: alpha (G) = .82, alpha (NZ) = .80). In both samples, self-efficacy and externality were numerically low but significantly negatively correlated, $r(G) = -.31$, $< .01$, and, $r(NZ) = -.23$, $p < .01$. Consequently, the reliability of scale differences were sufficient ($r(G) = .73$, $r(NZ) = .67$). There are no significant differences for any reliability parameters between the two national samples, indicating that reliability of the second-level I–SEE Scales is sufficient and comparable in both the German and English version.

Concurrent validity of the I–SEE is supported by the moderate positive, significant correlation of its Externality Scale to the unidimensional NS–LOC in both national samples (see Table 2). The Self-Efficacy Scale is negatively and less

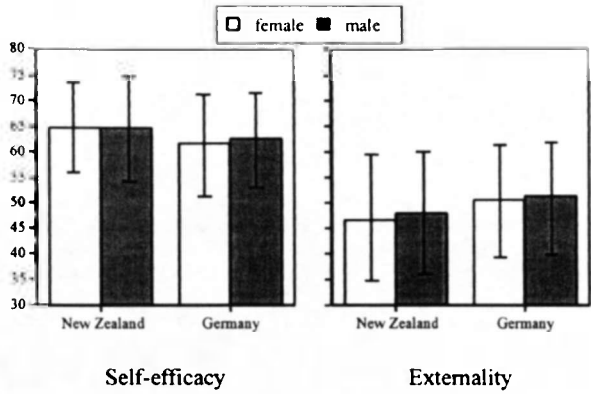

Figure 2. Self-efficacy and externality for male and female students in New Zealand and Germany.

strongly correlated to the NS–LOC, indicating a high externality determination and low self-efficacy determination of the contents of the unidimensional Nowicki–Strickland I–E Scale. For the German sample, there is empirical evidence that the I–SEE Scales are not biased by social desirability: self-efficacy, $r = -.01$, $p > .10$, and externality, $r = .04$, $p > .10$.

Descriptive results with respect to these secondary-level I–SEE Scales are presented in Figure 2 for both national samples. Without significant heterogeneity of variances, Levene's Test, $F(1,434) < 0.45$, $p > .10$, the results of analyses of variance indicate neither significant main effects of nationality: self-efficacy, $F(1, 434) = 1.73$; externality, $F(1, 434) = 2.27$ or of gender: self-efficacy, $F(1, 434) = 0.91$; externality, $F(1, 434) = 1.62$. And there were also no interaction effects for Nationality × Gender: self-efficacy, $F(1, 434) = 1.94$; externality, $F(1, 434) = 0.27$. Thus the I–SEE Scales measure generalized self-efficacy and externality beliefs without any gender bias (e.g., see Kalechstein & Nowicki, 1997; Krampen, 1982, 1991) with comparable sensitivity in New Zealand and German adolescents.

Correlates of Self-Efficacy and Externality in Educational and Developmental Psychology Contexts

In both national samples, indicators of academic achievement and of academic-achievement motivation show weak relations to generalized self-efficacy and externality of the secondary school students (see Table 2). In line with the

meta-analytical results presented by Kalechstein and Nowicki (1997), need value of school mark/grade is correlated negatively with externality in the German sample. However, positive relations of the Self-Efficacy Scale to need value of school marks/grades in both national samples are larger than their negative relations to the Externality Scale. School certificate results correlated significantly to self-efficacy only in the German sample.

The correlative results for the I–SEE Scales and the Classroom Environment Scales in both national samples are in very good agreement. Self-efficacy of students is positively related to personal involvement and engagement in classroom activities as well as to the perception of rule clarity in the classroom setting. Externality shows a numerically somewhat lower, but still significant negative correlation to personal involvement–engagement in both national samples. All other correlations between I–SEE and the CES are not significant and are inconsistent.

Additionally, results on the relation between the I–SEE Scales and some developmental aspects are presented for the German sample in Table 2. Externality is significantly correlated with the number of personal problems and school problems reported by the secondary school students, whereas there are no relevant relations to perceived social support. Furthermore, self-efficacy is negatively correlated with the number of personal problems reported and positively correlated with perceived peer support. Perceived support of teachers and of family show no significant relations to self-efficacy and externality. Thus, self-efficacy may be a protective factor for developmental problems in adolescence and is accompanied by a higher level of perceived social peer support, whereas externality indicates developmental problems.

DISCUSSION

The results presented confirm the good psychometric properties of the I–SEE Scales, the English version of a German inventory for the measurement of generalized self-efficacy and externality beliefs in adolescents. With a total of only 32 items, the I–SEE Scales can be administered economically in many settings of basic as well as applied psychological research. Because the I–SEE is integrated into the AMP (Krampen, 1988, 2000), it allows further research within a theoretical framework of personality psychology (e.g., Bandura, 1977, 1986; Rotter, 1982), cognitive theories of motivation (e.g., Heckhausen, 1977, 1989), and an actional approach to life-span development (Brandtstädter, 1998; Brandtstädter et al., 1986; Lerner & Busch-Rossnagel, 1981). Item contents of the I–SEE Scales allow its application from adolescence (from age 14) over adulthood up to old age. However, the psychometric quality of the English version has, until now, only been tested in the age range of 16 to 17 years. Experiences with the original German scale, however, suggest that good psychometric properties can also be expected for other ages.

The results presented here on the correlative relations of self-efficacy and externality to some indicators of developmental tasks in adolescence (academic achievement, developmental problems, and social integration) confirm and extend existing empirical results. Academic achievement motivation (and, weaker, academic achievement) is correlated negatively to externality (see Kalechstein & Nowicki, 1997). Moreover, the correlations of self-efficacy with the indicators of academic achievement (motivation) prove to be numerically higher and consistent for both samples. However, the common variance remains rather low, and the hypothesis that this relationship may be moderated by classroom environment perceptions of students (Tricket & Moos, 1973, 1974) is not supported by our data. This holds also for significant but rather weak correlations between self-efficacy and personal involvement in classroom activities and perceived rule clarity.

The relations of self-efficacy and externality to developmental problems and perceived social support of adolescents confirm the hypothesis from research on coping and social support networks (e.g., see Bilsky & Hosser, 1998) that self-efficacy is a protective factor and generalized externality is a risk factor for developmental problems. Moreover, the positive correlation between self-efficacy and perceived support by peers suggests that the increasing importance of the social peer group during adolescence is actively produced by the adolescent individual.

However, several aspects of our theoretical and empirical arguments beg further empirical research. In particular, the predictive value of self-efficacy and generalized externality for adolescent development should be further investigated. Longitudinal data should be gathered to investigate the protective effects of self-efficacy on personal progress as well as on social integration. Moreover, the relationship of self-efficacy to other facets of the self-concept and, particularly, to the development of self-esteem remains to be shown empirically. The protective effects of a differentiated and competence-founded self-esteem (versus a high but unstable self-esteem) are indicated in recent literature on juvenile delinquency (Baumeister, Smart, & Boden, 1996; Greve, Enzmann, & Hosser, 2001.). This is an important task for developmental research because across cultures, many adolescents face crises including school problems and dropping out, violence and delinquency, drug and alcohol (ab)use, unsafe sex, and other kinds of deviant and risk behavior (Lerner & Galambos, 1998). We clearly need to know more about regulatory functions and the effects of these kinds of problem behaviors (Silbereisen & Noack, 1988). Specifically, because the development of the self is a necessary prerequisite for successful self-development, we need to know more about the consequences of developmental interventions in adolescence (Greve, 2001; Lerner & Galambos, 1998). Thus, empirical research on self-efficacy as a central aspect of personality development in adolescence is relevant from theoretical, as well as practical, perspectives.

Without doubt, education is the most important way to influence the development of self and personality positively in adolescence. Thus, from an educational

perspective, the poor predictability of school achievement (particularly for the New Zealand sample) reported in this study demands further investigation. Despite measurement problems (i.e., validity of school certificate results), moderating effects both of individual and social influences on school achievement require further research.

From the perspective of self-concept development in adolescence (Harter, 1990) as well as from an actional perspective on development (Brandtstädter, 1998) the AMP offers a framework that also allows us to integrate this discussion into a personality approach on adolescence. In particular, the central importance of self-efficacy is stressed from both perspectives and is well accommodated within the AMP. This study paves the way for further investigations on the developmental function of self-efficacy by introducing a standardized measure of self-efficacy that is applicable both for adolescents and adults (which is a precondition for longitudinal studies). At the same time, it is constructed from the perspective of an AMP development.

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