

School Based Career Development Interventions: A Systematic Review of Doctoral Theses Conducted in India

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Abstract

India's National Education Policy (2020) envisages that the aim of education will not only be cognitive development, but well-rounded individuals equipped with key 21st Century skills. Within this context, career development as a domain of human development has received little attention. School based guidance and counselling programmes *inter-alia* focus on developing career maturity and career development among students; however, the effectiveness of such programmes is unsatisfactory as they follow a piecemeal approach. On the other hand, there is a growing body of work on the effectiveness of career interventions on students' career maturity and career development. This paper is a systematic review of Indian doctoral theses on career intervention programmes and its effectiveness for school students. We were interested in (i) theories underpinning the career intervention; (ii) the intervention plan; (iii) the experimental design; (iv) the dependent variable/outcome as career maturity/career development; and (v) effectiveness. Theses from 2000 to 2024 digitally available on Shodhaganga@INFLIBNET, an open-source digital repository popularly known as "a reservoir of Indian Theses", were examined. Six inclusion criteria and 11 keywords were pre-defined. Altogether, 274 doctoral theses were initially identified and among these, 12 met the criteria for meta-synthesis. The theses were from the disciplines of psychology, education, pedagogical sciences and business management. The theoretical underpinnings of the career intervention programmes were structural, developmental, social cognitive or learning theories. Intervention outcomes were assessed uniformly through quasi-experimental designs with a pre-test-post-test comparison group design to examine effectiveness. Obtained results denoted effectiveness on a range of predefined career-related dependent variables. These findings carry important implications for practitioners, indicating the necessity for implementing structured and continuous career interventions.

Keywords: career intervention, career counselling, career guidance, systematic review, career maturity, career development.

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Introduction

Choosing a career is not a one shot affair. It is a prolonged process. Planning for a career is important for students at a very early stage of school life. It is not just about knowing one's interest in a particular field of study, students also need to understand their strengths and limitations to choose an appropriate career option. India's National Education Policy (NEP 2020) recommends developing broader skill sets in school for readiness to enter varied career paths. However, this career choice making is an issue among many school students due to various factors. First, students need to realise their interests and passions, develop the skill sets through education and training, understand the job market as well as various career options, and develop the ability to make the right career decision that may enable social adaptability and wellbeing (Sharapova, 2023). Parents and family members play a major role as well. Lack of self-knowledge, knowledge about career options and training in the desired career skill sets, and dominance of parents and family members' expectations, may all lead to career indecision in students (Sharapova et al., 2023). Proper career guidance and counselling can help channelize school students towards making the right career choices. Career guidance and counselling is a skilled service that helps students to make informed decisions about their career paths and career developments by reducing anxiety, career indecision, and increasing self-esteem, self-confidence and self-efficacy. Elements in career intervention programmes could include a) self-assessment of one's skills, interests, values and personality traits, b) offering details of career options, job markets and educational requirements, c) enabling clear, achievable and realistic goal setting and d) providing emotional support to reduce anxiety and increase self-confidence and self-efficacy.

This study examines research in career intervention practices for school students, particularly as part of doctoral degree programmes in India. A systematic review

of Indian doctoral theses was executed, and this article provides a meta-synthesis of the findings. The following questions were examined:

1. What are the theories underpinning school students' career interventions in the selected doctoral theses?
2. How are career interventions planned in the selected doctoral thesis?
3. How is career intervention effectiveness examined in the selected doctoral theses?
4. What are the findings of outcomes for the career interventions examined in the selected doctoral theses?

Method

Database

The Shodhganga@INFLIBNET database is a reservoir for Indian Ph.D. theses. It is a multidisciplinary repository. An electronic search on this database was conducted using keywords related to school-based career guidance and counselling interventions between 12th and 20th of November 2024.

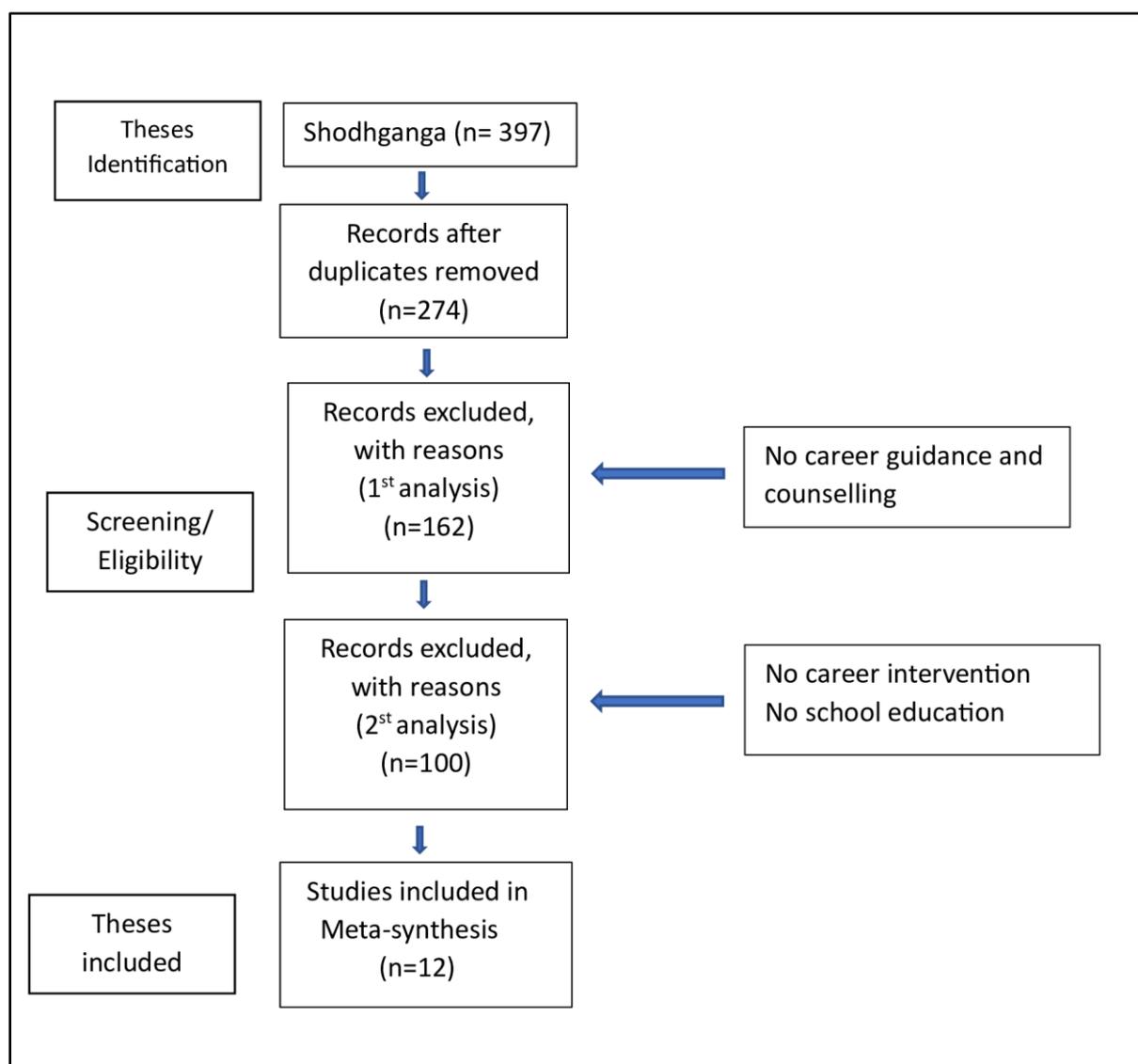
Eligibility for Collection of Doctoral Theses

Six inclusion criteria and eleven keywords were specified. The criteria for inclusion were a) doctoral thesis, b) reported in the English language, c) completed between January, 2000 and October, 2024, d) school students as population, e) a career intervention plan, and f) an experimental research design. The eleven predefined keywords were career counselling, career guidance, career intervention, vocational counselling, vocational guidance, vocational intervention, career development, career readiness, career maturity, secondary school students, and school students.

Screening and inclusion. The PRISMA protocol was adopted (see Figure 1). 397 doctoral theses were retrieved from the Shodhganga@INFLIBNET database searches. The theses were first exported to Microsoft Excel to eliminate duplicates. 274 (69%) articles remained. This first screening assessed whether the theses followed the theme of career guidance and counselling. In the second phase of screening the theses were assessed for eligibility based on the criteria of reporting

a career intervention and with school students. As represented in Figure 1, among the 274 non-duplicated theses, the first screening phase identified 162 (59%) theses with no career guidance and counselling themes and in the second phase of screening, 100 (36%) with no career intervention or no sample of school students. The remaining 12 theses were subjected to full reading and meta-synthesis.

Figure 1
Doctoral Thesis Selection Process



Data Extraction and Analysis

The 100 doctoral theses were subjected to analysis based on the title and abstract of the study by two researchers, independently to minimise bias. This was to scrutinise and have an overall understanding and to get a clear outline of the studies selected for systematic review. In the end, only the doctoral theses aligning to the eligibility criteria were retained. Any disagreements were resolved through discussion.

Data extracted was organised under the following topics: theories underpinning the career interventions, the career intervention plan, the research design, the dependent variable(s) and tools used, and the findings of the study (see Table 1). The detailed result of the systematic review of the doctoral theses on career intervention among school students are discussed below.

Results and Discussion

Doctoral level research on career intervention programmes for school students in India gained emphasis progressively with 83% theses (n=9) completed after 2014 and only 16% (n=2) between 2000 and 2010.

The findings are reported under five themes: i) theories underpinning career interventions for school students, ii) the nature of career intervention plans, iii) the research design of the study including sample characteristics, duration and additional activities, iv) the tools employed and v) the effectiveness of career interventions per study. Thesis by thesis summaries are presented in Table 1 and detailed below.

i) Theories underpinning career interventions designed for school students

From the 12 doctoral theses reviewed, theories underpinning the career intervention designs were identified. Several rationales are noteworthy: Super's

developmental self-concept theory underpinned nine (75%) theses (Subasree, 2003; Andleeb, 2016; Paul, 2021; Kariyappa, 2021; Ramasamy, 2003; Shashikant, 2007; Fatima, 2019; Vijayakumar, 2017; Dixit, 2023), Holland's typological theory of vocational choice underpinned nine (75%) (Subasree, 2003; Andleeb, 2016; Kariyappa, 2021; Ramasamy, 2003; Shashikant, 2007; Fatima, 2019; Vijayakumar, 2017; Rani, 2020; Dixit, 2023), the trait-and-factor theory underpinned eight (67%) (Subasree, 2003; Andleeb, 2016; Kariyappa, 2021; Ramasamy, 2003; Shashikant, 2007; Fatima, 2019; Rani, 2020; Dixit, 2023), the social cognitive theory underpinned six (50%) (Paul, 2021; Ramasamy, 2003; Fatima, 2019; Vijayakumar, 2017; Rani, 2020; Ramakrishnan, 2014), Krumboltz's Social Learning Theory of Career Choice underpinned five (42%) (Andleeb, 2016; Paul, 2021; Kariyappa, 2021; Ramasamy, 2003; Rani, 2020), Ginsberg's Theory of Vocational Choice underpinned four (33%) (Andleeb, 2016; Ramasamy, 2003; Shashikant, 2007; Dixit, 2023), Crites's Approach theory underpinned four (33%) (Andleeb, 2016; Paul, 2021; Rani, 2020; Dixit, 2023), and Gottfredson's Theory of Circumscription and Compromise underpinned three (25%) (Andleeb, 2016; Ramasamy, 2003; Shashikant, 2007).

ii) The research design with sample characteristics, intervention duration and follow-on activities

All studies used a pre-test post-test design with a comparison group. Of these, six studies (50%) included non-equivalent (intact) groups (Subasree, 2003; Kariyappa, 2021; Shashikant, 2007; Ramasamy, 2003; Vijayakumar, 2017; Kumar, 2017) and the six studies (50%) include equivalent (randomized) groups (Andleeb, 2016; Paul, 2021; Rani, 2020; Ramakrishnan, 2014; Fatima, 2019; Dixit, 2023).

Almost all studies used one experimental group (n=10, 83%, Andleeb, 2016; Paul, 2021; Kariyappa, 2021; Shashikant, 2007;

Ramasamy, 2003; Fatima, 2019; Divya Vijayakumar, 2017; Ramakrishnan, 2014; Dixit, 2023; Kumar, 2017). But study design also extended to two groups with different treatments (n=1, 8%, Rani, 2020) and with the same treatment (n=1, 8%, Subasree, 2003).

Study samples included high school students (n=1, 8%, Vijayakumar, 2017), higher secondary school students (n=3, 25%, Kariyappa, 2021; Fatima, 2019; Dixit, 2023), secondary school students (n=3, 25%, Paul, 2021; Ramasamy, 2003; Ramakrishnan, 2014), senior secondary school students (n=1, 8%, Andleeb, 2016), adolescents (n=1, 8%, Kumar, 2017), age group 14 -16 (n=1, 8%, Shashikant, 2007), age group 15 to 17 (n=1, 8%, Subasree, 2003) and class nine (n=1, 8%, Rani, 2020). Hence all samples included

studies were in the adolescent age band. Sample sizes (n=12, 100%) ranged from 45 to 190.

Durations of the interventions ranged from medium lengths of one to three months (n=8, 67%, Andleeb, 2016; Paul, 2021, Shashikant, 2007; Vijayakumar, 2017; Kumar, 2017; Ramasamy, 2003; Fatima, 2019; Ramakrishnan, 2014) to the longer lengths of five to six months (n= 3, 25%, Kariyappa, 2021; Subasree, 2003; Dixit, 2023).

A small number of studies also conducted follow-up activities after the experimental evaluation: interviews (n=1, 8%) (Subasree, 2003) and gathering feedback (n=2, 16%), (Vijayakumar, 2017; Paul, 2021)

Table 1.
Systematic Review Summary

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Subasree, 2003 (Psychology)	<ol style="list-style-type: none"> 1. Trait and factor theories of vocational choice. 2. Psychodynamic theories of vocational choice 3. Super 's development self-concept theory 4. Tideman's theory 5. Decision theories of vocation choice 6. A typological theory of vocational choice 	<p>Pre-test -post-test Equivalent groups design</p> <p>Three experimental groups (10th, 11th and 12th Grades) and one control group</p> <p>Follow up interview; Sample = 15 to 17 age group; Sample size 45.</p>	<p>Group counselling sessions, one hour each; then individual attention based on students' needs over six months.</p>	Holland's Career Choice Scale	<p>Effective on level of aspiration, vocational maturity and career choice; there is significant gender difference in case of career choice. Follow-up interviews further confirmed intervention was effective in supporting students' career choice.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Ramasamy, 2003 (Psychology)	<ol style="list-style-type: none"> 1. Trait & Factor (Parsons, 1909) 2. Psychosocial Development Erikson, 1950) 3. Occupational Choice (Ginzberg, 1951) 4. Holland's theory (Holland, 1959) 5. Theory of work adjustment or person environment correspondence (Dawis et al., 1964) 6. Myers-Briggs Type Indicator (Briggs Myers & Cook Briggs based on Carl Jung theory, 1985) 7. Super's life span, life space theory of career development (Super, 1980,1990) 8. Gottfredson's theory (Gottfredson, 1981) 9. Social learning (Bandura, 1986) 10. Career selection (Krumboltz, Mitchell, & Jones, 1976) 11. Adult transition (Schlossberg et al., 1995) 12. Career self-efficacy (Bandura, 1997) 13. Career decision making (Peterson, et al., 2002) 	<p>Pre-test–post-test equivalent group design.</p> <p>Dalit school students (10th, 11th, and 12th Grade).</p> <p>Sample size 120.</p>	21 tutorials, each tutorial of one-hour duration	Career orientation skill questionnaire developed by the researcher.	The training module enhanced career orientation skills of the experimental group (i.e. significant improvement in career exploration; improvement in career confidence, and career decision making). Career orientation skills differed significantly based on the demographic groups. Girls found to be higher across all three skill sets of career orientation than boys.

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Shashikant, 2007 (Psychology)	<ol style="list-style-type: none"> 1. Trait-and factor theories 2. Holland's Theory 3. Ginzberg et al's theory 4. Super's theory and Gottfredson's theory 5. Multiple career decision-making theory by Gati (1986), and Gati and Tikotzki (1989) 6. Cognitive Information Processing (CIP) theory (Peterson, Sampson, & Reardon, 1991; Sampson, Reardon, Peterson, & Lenz, 2004) 7. Lent, Brown, & Hackett's Social Cognitive Career Theory (1994), 8. Patton and McMahon's Systems theory (1999) of career development. 	<p>Pre-test-Post-test, non-equivalent Group Design.</p> <p>Sample age 14-16 years.</p> <p>Sample size 99. 52 students were randomly assigned to Experimental Group 1 and Control Group 3a while 47 students were randomly assigned to Experimental Group 2 and Control Group 3b. The four groups formed were as follows: Group I (N = 31) — receiving intervention I (the SCI - Student involved Career Intervention) Group 3a (N = 21) — no intervention Group 2 (N = 21) — receiving intervention II (the SPCI - Student and Parent involved Career Intervention) Group 3b (N = 26) — no intervention</p>	<p>The SCI program model was structured in the form of group workshops (six to eight students per group). The duration was 15 days per group; 45 minutes per day only for students.</p> <p>The SPCI program model had workshops in the form of group interactions with the parents and the students.</p>	Career Decision Scale (Osipow, et al., 1976)	This intervention increased students' certainty about making educational and career choices and helped decrease students' indecision about making educational and career choices.
Ramakrishnan, 2014 Pedagogical Sciences)	<ol style="list-style-type: none"> 1. Social learning theory (Bandura, 1986) 2. Rational – emotive theory (Ellis, 2002), 3. Gestalt therapy 4. Neuro- Linguistic Programming (NLP). 	<p>Pre-test-post-test non-equivalent group design. Sample - Higher Secondary students. One government school and one aided school for the experimental group. Two control groups also from one government school and one aided school. Sample size – 240</p>	Group counselling of 32 sessions with 64 activities. Duration six months; each session of 1½ hours.	Vocational Choice Scale (VCS) developed by the researcher.	The counselling programme was effective with regard to attainment of life skills, and choice of vocation of students at higher secondary level.

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Andleeb, 2016 (Education)	<ol style="list-style-type: none"> 1. Trait and Factor theory. 2. Holland's Typological Theory of Vocational Personalities and Work Environments 3. Super's Life-Span, Life-Space Theory of Career. 4. Krumboltz's Social Learning Theory of Career Choice. 5. Constructivist theory of career development. 6. Gottfredson's theory of Circumscription and Compromise 7. Ginzberg's theory of Vocational Choice. 8. Erickson's theory 9. Crites' approach. 	<p>Non-equivalent pre-test-post-test control group design</p> <p>Sample - Grade 11 student of art streams.</p> <p>Sample Size 115.</p>	<p>Whole group counselling (30 days, 30 sessions and each of 30 or 35 minutes); Art stream based career interventions</p>	<p>The Indian adaptation of Career Maturity Inventory (CMI), (Gupta, 1989)</p>	<p>The intervention programme of vocational guidance was effective in enhancing occupational aspiration and career maturity of senior secondary school students.</p>
Kumar, 2017	<ol style="list-style-type: none"> 1. Cited early career decision theories included: 2. Janis & Mam (1977). 3. Gelatt (1962, 1989). 4. Kartz (1963, 1969). 5. Miller – Tiedman (1977). 	<p>Pre-test, post-test control group design.</p> <p>Sample 9th grade students.</p> <p>Sample Size 54.</p>	<p>Seventy sessions of group guidance and counselling; each session of 45 minutes. Additionally, 30 personal guidance and counselling sessions of 10-15 minutes for individual students and ten meetings of 20 – 30 minutes duration with parents.</p>	<p>Occupational Aspiration Scale developed by the researcher.</p>	<p>The study revealed that guidance and counselling services have a positive effect on students' academic achievements and occupational aspirations.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
<p>Vijayakumar, 2017 (Psychology)</p>	<p>Cited theories included:</p> <ol style="list-style-type: none"> 1. Parsons' Theory (1909). 2. Holland's Theory of Vocational Types (1973). 3. Bandura's Social Cognitive Theory (1977). 4. Super's Developmental Self-Concept Theory (1980). 5. Savickas' Structural Model of Career Adaptability (2012). 6. Theories of narrative counselling. 7. Impact of Kelly's personal construct theory. 8. Impact of Super's Self-concept. 9. Contextual career theory of life narratives. 	<p>Two group pre-test- post-test equivalent group and follow-up design</p> <p>Follow-up assessment was done three months after the post-test.</p> <p>Feedback on the intervention was also obtained during the post-test.</p> <p>Sample Grade VIII, age group 13 to 14.</p> <p>Sample Size 82 (41 each in the experimental and control group).</p>	<p>Narrative Career Counselling intervention</p> <p>Participants involved- students (all sessions) and parents (1 general session and 1 individual session)</p> <p>No. of group sessions- 10 (12 to 15 participants per group)</p> <p>No. of individual sessions - 2</p> <p>Total no. of sessions - 12</p> <p>Frequency- once a week</p> <p>Duration of each session - Group: 60 min; individual: 30 min each</p>	<p>Ego Strengths Aspirations- Psychosocial Inventory of Ego Strength- PIES (Markstrom & Marshall, 2007);</p> <p>Aspiration Index- Short Form (Kasser & Ryan, 1996).</p>	<p>At post-test level, experimental and control groups differed significantly on all dimensions of extrinsic and intrinsic aspirations dimension of community; mean values of the experimental group being higher than the control group. At follow-up, the two groups significantly differed on intrinsic aspirations only, with the experimental group showing higher scores. Intrinsic aspirations increased continually across the sample, while extrinsic aspirations increased immediately after intervention and decreased during the follow-up.</p> <p>The study also reports factors shaping students' career decision-making and expectations:</p> <p>Influences: Personal interests, media, role models, family.</p> <p>Feelings: Hope, anxiety, confidence.</p> <p>Challenges: Parental objection, finances, scope, uncertainty.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
					<p>Expectations from counselling: Self-awareness, parental guidance, direction, information.</p> <p>Parents' expectations: Financial security, happiness, social contribution.</p> <p>Response to mismatch: Allow or persuade through discussion (pros/cons).</p>
Fatima, 2019 (Education)	<p>Cited theories included:</p> <ol style="list-style-type: none"> 1. Trait-and-Factor theory. 2. Super's vocational theory. 3. Holland's Theory of Personality Occupation Typology. 4. The Social Cognitive Career Theory (SCCT). 	<p>Pre-test-post-test control group design non-equivalent; population - senior secondary students; sample: class 9 students and underachievers; sample size is 140 (experimental group 71 and control group 69)</p>	<p>Total number of counselling sessions 30 Time for each session is 15-60 min. The gap between counselling sessions is 3 days.</p>	<p>Career Aspirations Scale developed by the researcher</p> <p>Self -efficacy tool (Schwarzer& Jerusalem, 1995).</p>	<p>These counselling interventions had a considerable effect on career choice and self-efficacy of underachievers.</p>
Seema Rani, 2020	<p>Cited theories included:</p> <ol style="list-style-type: none"> 1. Trait and Factor theories. 2. Holland's Personality Types theory. 3. Roe's Theory of Personality. 4. Hoppock's Composite Theory of Occupational Choice. 	<p>Pre-test-post-test non-equivalent one control group and two experimental group designs.</p> <p>Sample- Grade IX students.</p> <p>Sample Size -104 (Control: 31, Experimental Group A: 37 and Experimental Group C:</p>	<p>Group counselling. Details on sessions and duration for either the Complete or the Partial intervention not reported.</p>	<p>Rosenberg's Self Esteem Scale (RSES)</p>	<p>Increased self-efficacy. The author argues that becoming aware of the existence of vast career opportunities itself has a positive impact on self-esteem. Having options for vocations based on their interest, also may have increased self-esteem significantly.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
	<ol style="list-style-type: none"> 5. Super's Developmental Approach. 6. Tiedman's Decision Theory. 7. Crites' Comprehensive Theory. 8. Krumboltz's Social Learning Theory of Career Decision Making. 9. Social Cognitive Career Theory by Lent, Brown, and Hackett (1994). 	<p>36). Experimental group A received Complete vocational counselling, group C received Partial vocational counselling.</p>			
Kariyappa, ,2021 (Education)	<p>Cited theories included:</p> <ol style="list-style-type: none"> 1. Trait-and-Factor. 2. Super's Career Development Theory 3. Roe's (1956) theory focusing on early relations within the family and their subsequent influence on career choice 4. Holland (1985), the choice of a career 5. Krumboltz's (1979) theory of career development 6. Tiedemann & O'Hara, 1963) on the career decision-making process. 	<p>Pre-test-post-test equivalent groups design</p> <p>Sample -9th Grade students & age group 14 - 15</p> <p>Sample Size 71.</p>	<p>90 periods of 40-45 minutes duration each. The experimental intervention continued for five months.</p>	<p>The Career Development Inventory (CDI) developed by (Super, et.al.)2008) was adapted into Telugu language</p>	<p>The career development programme was effective on career related variables; Girls scored higher than boys on career planning, career exploration, career attitudes, career decision making, knowledge and skill, and overall career orientation.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Paul, 2021 (Pedagogical sciences)	<p>Cited theories included:</p> <ol style="list-style-type: none"> 1. Social Learning Theory (Bandura, 1977b). 2. Social Cognitive Theory (Bandura, 1986). 3. Social Cognitive Career Theory (Lent, Brown & Hackett, 1994, Lent, 2005); 4. Theory of Career Maturity (Super, 1957). 5. Measurement of Career Maturity (Crites, 1971) 6. Career decision making self-efficacy scale – SF (Betz, Klein and Taylor, 1996) 7. 1996) 8. Social learning theory of career decision-making (SLTCDM) 	<p>Pre-test-post-test, non – equivalent group design followed by student feedback</p> <p>Sample - Class 10 (State, CBSE & ICSE).</p> <p>Sample size 190 from science (98), commerce (52) and humanities (40) stream of study</p>	<p>Whole group counselling, 10 sessions, each of 120 minutes duration.</p>	<p>Career decision making self-efficacy (CDMSE) tool developed by the researcher.</p>	<p>The career guidance package was effective in enhancing the components of CDMSE: self-exploration, occupational information, goal selection, planning and problem solving. Students' feedback data were not reported.</p>

Author, Year (Discipline) of Research	Underpinning Theory	Research Design	Intervention Plan	Tools for Outcome Measure	Intervention Outcome
Dixit, 2023	<ol style="list-style-type: none"> 1. Trait and Factor Theory. 2. Roe's Personality Theory of Career Choice. 3. Ginzberg et al theory of occupational choice. 4. Holland's typological theory of vocational choice. 5. Donald Super's Lifespan and Life Space theory. 6. Super's concept of Career maturity 7. Crites model career maturity. 	<p>Pre-test-post-test non-equivalent control group design; Sample: a Moraji Desai Residential school, age group of 14-16.</p> <p>Sample Size -79 with 32 experimental and 47 control.</p>			

iii) Career intervention plans

All the theses had a variety of intervention plans. Almost all used either whole group intervention (n=10, 83%, Subasree, 2003; Andleeb, 2016; Paul, 2021; Kariyappa, 2021; Shashikant, 2007; Ramasamy, 2003; Rani, 2020; Ramakrishnan, 2014; Dixit, 2023; Kumar, 2017) or a small group intervention (n=2, 16%, Fatima, 2019; Vijayakumar, 2017). A few had a follow-up individual intervention (n=2, 16%, Subasree, 2003; Vijayakumar, 2017; Dixit, 2023). Some studies provided interventions for both students and parents (n=4, %, Subasree, 2003; Shashikant, 2007; Vijayakumar, 2017; Kumar, 2017). All were classroom-based interventions and one included an exhibition, field trip and workshop (n=1, 8%, Shashikant, 2007). All interventions planned for themed sessions and used different activities and strategies to deliver the content. Career talk or verbal discourse was the main mode of presentation

(n=12, 100%) while some used various modes of representation such as verbal discourse, pictures, video clips and worksheets for conceptual understanding (n=2, 16%, Andleeb, 2016; Paul, 2021).

iv) Career intervention outcomes

All the studies report the career intervention programme as impacting their chosen career oriented variables. The dependent variables and tools used are reported in column 5 in Table 1.

Discussion

The systematic review of Indian doctoral researches on career interventions among school students found the following:

The studies claim that career intervention programmes were found to be effective in improving the respective career-related variables such as career choice (Subasree, 2003) and vocational choice (Ramakrishnan, 2014); career maturity (Andleeb, 2016; Dixit, 2023); career decision making self-efficacy (Paul, 2021); career-related variables (Kariyappa, 2021); career orientation skills (Ramasamy, 2003); career decision making (Shashikant, 2007); career aspiration (Fatima, 2019) and occupational aspiration (Kumar, 2017); career self-efficacy (Fatima, 2019) and psychological factors of vocational development & ego strengths (Vijayakumar, 2017), aspirations and self-esteem (Rani, 2020).

The research design used in the quasi-experimental studies was the classical pre-test-post-test comparison group design. This design is considered apt for studying the effectiveness of career intervention programmes, especially in educational settings where random assignment is difficult.

The career intervention plan of almost all the doctoral theses started with a rapport building session. The present career aspirations, career choices, career interests and one's self-knowledge were initially assessed to give individual attention and also for self-realisation of strengths and limitations. This was followed by a focus on options in the job market and the required skill sets, usually through career talks especially from experts and workshops, but in one instance through a field trip and exhibition. Feedback was given by the counsellors on the performance of the students at the end of the intervention. Some career intervention programmes included parents as main participants or co-participants as they may be a cause of school student's

indecisions and such studies reported reduced career indecision and increased their career decision making skills after the intervention.

Content delivery strategies and activities included role play, brainstorming, group discussion and storytelling. Modes of representation showed variety, such as the use of video clips, pictures, and interactive PowerPoint presentations, colourful and pictorial worksheets apart from verbal discourse (lectures). A pattern of intervention delivery was observed that required effective facilitation skills. In the current review, identifying the best practices (or active ingredients) of interventions and the theoretical linkages with specific activities were not obvious. Future studies may be examined for the quality of intervention design and the extent to which each activity is linked to stated career theories (such as structural, developmental and social cognitive career theories).

Taken together, educational implications for career development among school students include:

The intervention should be continuous, beginning from the preparatory stage and extending up to the secondary stage, with inputs at varying levels.

The authorities may consider a whole-school approach.

The choice of interventions could be based on one or more theories of career choice or career development, rather than being conducted without any scientific basis.

A one-shot or piecemeal approach may be avoided. Schools must set long-term goals and ensure that adequate human and material resources are available.

Schools must take parents into confidence while designing and implementing the interventions.

Regular reviews help in improving and reforming intervention design, especially in the rapidly changing landscape of education and careers globally.

Conclusion

To conclude, our systematic review reveals that:

1. Indian theories did not seem to be referenced at all across the theses. This speaks to a 'looking west' attitude instead of looking at local evidence and grounded theorising.
2. absence of randomisation in assignment to experimental and

control group and the absence of fidelity checks to ensure quality of intervention. This urgently signals the need for future studies to adopt this essential gold-standard design, and

3. the interventions appear to have a multi-component structure focussing on several aspects essential to career counselling. It may be the case that the best interventions need to be multicomponent, but currently interpretation of what works within each intervention is unclear.

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(studies in the systematic review are marked with an asterisk *)

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