

A SYSTEMATIC REVIEW OF THE INFLUENCE OF TECHNOLOGY-MEDIATED EMPLOYMENT INTERVIEW ON APPLICANT REACTIONS FROM 2000-2010

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ABSTRACT

In this technology savvy world, the use of technology has become a common practice in organization even for personnel selection purpose. Among tools of selection that has begun utilising technologies for its medium is the employment interview which is most profound among the researchers as technology-mediated employment interview. The present study presents a systematic review of recent research on technology-mediated employment interview (i.e., interactive voice response interview, IVR; telephone interview, TI; videoconference interview, VI) in personnel selection with particular preference to applicant reactions. Via computer-assisted searches of social science databases, gateways, publications from relevant organizations, hand searched key journals and scanned reference lists, a total of five studies (3 experimental studies; 2 non-experimental studies) were selected and critically appraised. All studies demonstrated a mixed result. Three experimental studies found consistent results of negative applicant reactions on VI, but for TI, one study demonstrated positive applicant reactions while another study showed negative applicant reactions. With non-experimental studies, compared to VI and IVR, TI received consistent positive applicant reactions. All five studies had significant methodological flaws, particularly the absence of power calculations across all studies. With the insufficient, contradictory and methodologically flawed evidence, the present study noted several important key messages and further depict a hypothetical research model to guide future research in this area.

Keywords: *Applicants' reactions, employment interview, telephone interview, interactive video response interview and video-conference interview.*

INTRODUCTION

Personnel selection

Looking for the right person for a job is not an easy task for the employers especially to hire the right individual to be worked with, that is, selecting the right individual for the right job. However, many organizations do not realize that their wish to have a good employee to work with them is very much dependant and rooted on personnel selection process itself. Personnel selection process here refers to the process of selecting potential job applicants to be hired as new employees to work with the organization (Dipboye & Gaugler, 1993).

Personnel selection is a subject with a long history and of great controversies especially on its effectiveness and dignity (de Wolff & van den Bosch, 1998). Therefore, as indicated in most reviews of research of personnel selection (c.f., Borman, Hanson & Edge 1997; Hough & Oswald, 2000; Landy, Shankster & Kohler, 1994), examining the efficiency of selection tools in terms of their psychometric properties as well as their utility and legal defensibility are essentially important. However, personnel selection involves more than merely predicting in statistical terms the fitness or suitability of an individual for a particular job (Anderson, Born & Cunnigham-Snell, 2001; Posthuma, Morgeson & Campion, 2002), by which it also take into consideration the issue of applicant perspective.

Applicant perspective

As opposed to selection validation perspective or organizational perspective, researchers like Rynes (1989, 1991, 1993a, 1993b), Schuler (1993) and Herriot (1989) had captivantly entice the world of personnel selection and drew the attention to the perspective of the applicants. Schuler (1993) has noted that information given out by the organization influences the perceptions of applicants. Meanwhile, Rynes (1989, 1991) has mentioned that, reasons such as unrealistic applicant expectations, conflicting objectives, administrative complexities and surplus induced complacency could leads to the fall far short of applicant expectations in recruitment. She further suggested that “assessment and selection can be improved by viewing applicant as customers and by better management of recruitment process” (Rynes, 1989, p.38). Other researchers like Latham and Finnegan (1993) have focused on perceptions of a limited area of assessment selection namely employment interviews by which applicant and organizational perspectives were compared and contrasted.

Employment interview

The use of interview in personnel selection process is almost universal to the extent it is perceived to be odd by the applicants if they were not interviewed. For many organizations, interviews are the only or most important tool used in personnel selection process (Borman et al., 1997; Hough & Oswald, 2000; Landy et al., 1994). Nonetheless, most organizations that rely heavily on interviews as tool for their selection decisions may not realize that some types of interview or the process of how an interview was conducted can be problematic and may result in missing out on hiring the best person for the job.

Employment interview and applicant reactions

Most early research of applicants' reactions on employment interview has been conducted on interviewer variable (Rynes, 1991; Rynes, Barber & Varma, 2000) that is how applicant reacts to the interviewers, for example reactions on interviewers' demographic characteristics, traits and behaviours. Research findings showed that, when interviewer is informative and supportive, applicants reacted positively and the results were consistent across a number of studies (e.g. Maurer, Howe & Lee, 1992; Taylor & Bergmann, 1987, Turban & Dougherty, 1992; Kohn & Dipboye, 1998). But, for interviewer demographic characteristics (e.g., Liden & Parsens, 1986; Maurer, Howe & Lee, 1992; Taylor & Bergmann, 1987, Turban & Dougherty, 1992), findings are rather weak and inconsistent. In terms of interview process, research is fairly little, and the results found were inconsistent. Perhaps because interview can be distinguished in term of structure (e.g., Bies & Shappiro, 1988; Chapman & Rowe, 2002; Kohn & Dipboye, 1998; Taib, 2008), content (Conway & Peneno, 1999; Latham & Finnegan, 1993; Stevens, 1998) focus (e.g., Barber, Hollenbeck, Tower, Philips, 1994; Turban & Dougherty, 1992) and modality (Chapman & Rowe, 2002; Chapman, Uggerslev & Webster, 2003). As the paradigm shifted to the examination of interview processes, recent scientific inquiries begun to look at the influence of interview process' variables on applicants' reactions compared to interviewers' variables.

Interview process and applicant reactions

In the research area of applicant reactions on interview process, among all interview processes, interview structure was found to be the most frequently studied (Posthuma et al., 2002) although there is still ongoing research needed on interview focus (e.g. Alias, 2007; Barber, Hollenbeck, Tower & Philips, 1994; Stevens, 1998; Turban & Dougherty, 1992) and content (e.g., Abdullah, 2009; Alias, 2007; Barber, et al., 1994; Latham & Finnegan, 1993). Further, organizations had begun to utilise other modes of interview apart from face-to-face interview (c.f., Anderson, 2003; Chapman & Rowe, 2002; Silvester & Anderson, 2003) welcome a new subject of interview process named interview medium. In this new era of millennium whereby technological inventions has become part of the human daily activities, the use of technology has become a common practice in organization even for personnel selection purpose. This includes the use of technologies (i.e., telephone and videoconferencing interview) in employment interview which is most profound among researchers as technology-mediated employment interview (Anderson, 2003). For its efficiency in smoothing the selection process as noted by Anderson (2003), especially in saving time and cost, the use of technology-mediated employment interview has catch the attention of the researchers to look at its influence on applicant reactions.

Applicant reactions on technology-mediated job interview

Although very new, the research on interview medium and its influence on applicant reactions has actually took place even before 1990s where Martin and Nagao (1989) explored some effects of computerized interviewing on job applicant responses and almost a decade later, Kroeck and Magnusen (1997) continued the research by examining applicant reactions to videoconferencing job interviewing. Ever since, more research has been conducted to further examine the influence of technology-mediated employment interview on applicant reactions by which it leads to the present study systematic review on this issue. The present systematic review aims to collate and determine the quality of research on the influence of

technology-mediated job interview on applicant reactions for the post 90s period where it focus on the era of new millennium, specifically from the year 2000-2010.

Therefore, the present systematic review was arranged in according to a systematic proforma where it firstly outlined the methodology of selection of past researches (inclusion and exclusion criteria), followed with thematic review that discussed (1) The influence of technology-mediated job interview on applicant reactions, (2) Types of applicant reactions, (3) The interaction effects and/or the mediating and moderating effects of other interview process on applicants reactions toward technology-mediated interview and (4) The role of individual differences. Subsequently, all thematic review was further discussed, in addition to discussion on methodological flaws in the light of quality assessment where all selected past literature were critically appraised. Finally, a hypothetical model of applicant reactions on technology-mediated employment interview was proposed as guideline for future scientific inquiries.

METHODS

Terminology

Based on past researches (e.g., Chapman et al., 2003; Chapman & Rowe, 2002; Chapman & Zweig, 2005; Kohn & Dipboye, 1998; Hysong & Dipboye, 1999; Latham & Finnegan, 1993), job applicants can be identified as those who applying for job either as those who have the work experience or newly graduates, and may also include those future graduates who currently completing their final year undergraduate study. Anderson and Ostroff (1997) have defined applicant reactions as applicant decision making, organization's reputation from applicant perspective and applicant's legal actions while Moscoso (2000) in his review of selection interview, has defined applicant reactions as applicants' perceived attraction of organisation and acceptance intention, recommendation of the job to other people and perceived organisational justice. Therefore, from the above definitions applicant reactions can be defined as impression, attraction and perceptions of those who applying for a job on the organization who conduct the recruitment or selection process. Further, from definitions offered by researchers, among other terms used to represent applicant reactions are interviewee reactions, job candidate reactions, job applicant responses, applicant perceived fairness and procedural justice, perceived interview difficulty and expectation of favourable outcome, acceptance intention and attractiveness of organizations.

Technology-mediated interview refers to the use of technology in employment interview modality that includes telephone interview, interactive voice response and videoconference interview. Based on review of past researches, for example a review of researches on new technology in selection by Anderson (2003), and so far, most research on applicant reactions toward technology-mediated job interview in personnel selection have noted only three types of technology which referring to the telephone interview (including computer-assisted telephone interview (e.g., Anderson, Haddleton, Cunningham-Snell & Gibb, 2000; Bauer, Truxillo, Paronto, & Campion, 2004; Silvester & Anderson, 2003; Silvester, Straus, Miles & Levesque, 2001), interactive voice response (Bauer et al, 2004) and videoconference interview (Chapman et al., 2003; Chapman & Rowe, 2002). Therefore, among the terms that may represent technologies used in the employment interview are telephone interview (TI), interactive voice response (IVR), videoconference and videoconferencing interview (VC).

Inclusion and exclusion criteria

The present study included both experimental and non-experimental studies investigating the influence of technology-mediated on applicant reactions either as global score or multidimensional score where specific aspect of applicant reactions like perceived fairness and difficulty, perceived favourable outcome, perceived opportunity for permanent employment, litigation intention, applicant causal attribution, organizational attractiveness and acceptance intention were examined. Literature published within 2000-2010 were selected, and published researches prior to 2000 were excluded due to inaccessibility to their full paper and the available abstracts were rather brief and without any report of statistical values. Studies examining recruiters-related reactions, psychometric properties (validity, reliability), utility, equivalence and adverse impact were also excluded.

Search strategy¹

The present study has searched for empirical papers through social sciences databases and gateways published literature from the early 2000 till the recent year of 2010: Academic Source Premier, Business Source Complete, Regional Business News, ProQuest Social Sciences Journals, PsycINFO, PsycARTICLES, SpringerLink, Scopus and Google Scholar. Combinations of relevant keywords were used by the present study in search for relevant research papers relating the use of technology in employment interview (telephone interview, videoconference* interview? interview? modality or medium, technology* in employment or job interview and applicant* reaction? (e.g., applicant* perspective, candidate* reaction?, interviewee* reaction? and job candidate* reaction?). Applicant reactions have been conceptually defined on wide coverage of relevant aspects based on models and theories of applicants' reactions (c.f., Alias, 2006; Anderson et al., 2001; Anderson & Ostroff, 1997; Bauer et al., 2004; Moscoso, 2000; Rynes et al., 2000). Thus, from conceptual definitions offered by researchers and reviewers of applicant reactions research, the present study had utilized other possible keywords that represent applicant reactions (e.g., perceived fairness, perceived difficulty*, perceived opportunity* for future employment, perceived organizational justice, privacy concern?, applicant* motivation, attractiveness of organization and intention to accept job offer) in search for literature on applicant reactions toward technology-mediated employment interview. The search process in the present study did not apply any language restrictions.

The search strategy also included electronic and hand searched of organisations' publications such as *International Journal of Selection and Assessment*, *Journal of Management*, *Management Science*, *Journal of Applied Psychology*, *Journal of Occupational and Organizational Psychology*, *Journal of Cooperative Psychology*, *Journal of Applied Social Psychology*, *Organizational Behavior and Human Decision Processes*, *Personnel Psychology* and *Academy of Management Journal*. Further, unpublished studies were sought by using computer searches of Google Scholar, A-to-Z List of Journals, Communication Abstracts and ProQuest Dissertation and Theses, and lastly it is noteworthy to state that scanning reference lists also was conducted as part of the search strategy.

Data extraction and quality assessment

¹ “*” and “?” were used to include search for both American and British spelling of the terms as well as plural and singular forms of the terms.

For assessing eligibility, extracting relevant data and evaluating the methodologically high quality studies, the proforma (see Table 1) for quality assessment and data extraction used by Mitrofan, Paul and Spencer (2008) in their systematic review was adopted in the present study. Mitrofan et al., (2008) noted the adoption of those criteria from the 2004 Critical Appraisal Skills Programme, and the criteria outlined include general and specific guidelines for both and quantitative and qualitative studies. However, the natures of all selected studies in the present study were found quantitative in nature (for both experimental and non-experimental studies). Therefore, the present study only partially adopted the proforma of quality assessment criteria (c.f., Mitrofan et al., 2008) as depicted in Table 1 below:

Table 1. Quality assessment criteria as partially based on Critical Appraisal Skills Programme (as cited in Mitrofan et al., 2008)

Quality assessment criteria
Common criteria for quantitative studies
Appropriate study design for research question or study aim
Adequate sample size (i.e., sufficiently powered (meaning, between 80% to 90%) at a conventional level of significance ($p \leq 0.05$ or 0.01))
Clearly described characteristics of participants (demographics characteristics, condition or diagnostic)
Valid measures
Reliable measures
Appropriate statistical measures
Appropriate sources of biased indentified
Additional sources of biased addressed
Additional specific criteria for experimental studies
Clearly defined inclusion criteria (i.e., diagnostic criteria)
Clearly defined exclusion criteria
Random allocation
Blinding (of outcome evaluation)
Dropouts clearly described
Dropouts accounted for
Additional specific criteria for observational, cross-sectional survey
Appropriate type of survey
No systematic differences between respondents and non-respondents
Efforts made to ensure better response

RESULTS

Studies identified

Through the search strategy, 18 abstracts were identified, but only nine full papers were obtained. Finally, only five studies met the inclusion criteria (see Table 2). The main reason for exclusion was that the studies did not examine applicant reactions but they examined recruiter-related reactions. In terms of sample, all selected studies have the following characteristics: (1) the sample selected was students, either undergraduate

Table 2. Characteristics of the included studies

Author (s) and year	Sample	Method/ Design	Types of technology	Types of applicant reactions	Measures	Findings	Theoretical foundation	Mediator/ Moderator variables
Straus et al. (2001)	59 MBA students	Lab experiment (Mock interview) between-subject design (cross-sectional)	VC (experimental group 1), TI(experimental group 2) FTF (control group)	<i>Process perception</i> (communication understanding and conversation fluency), <i>Applicant comfort and self consciousness</i> , and <i>Likability</i> (job and organizational attractiveness)	Multi-dimensional, but only global cronbach alpha reported, $\alpha = .82$	Applicants feel less self-conscious and less comfortable, difficult to regulate and understand conversation in VC	Atheoretical	Nil
Chapman and Rowe (2002)	92 undergraduate students	Field experiment between-subject design (cross-sectional)	VC (experimental group) and FTF (control group)	Attractiveness of organizations.	Global scoring with $\alpha = .82$	Applicants feel less attracted to organizations with VC	Job signalling theory	Interview structure
Silvester and Anderson (2003)	62 UK graduates	Field experiment within-subject design (cross-sectional)	VC (experimental group 1), TI (experimental group 2), and FTF (control group).	Applicant causal attribution	Global scoring with Kappa coefficient $k = .52$	Applicants produce more personal causal attributions in TI	Attribution theory	Nil

Chapman et al.(2003)	970 student applicants	Field survey (Non-experimental, cross-sectional)	TI (n = 153) and VI (n = 92)	Perceived fairness, Perceived interview difficulty, Expectancies for favourable outcome and Acceptance intention.	Multidimensional scoring, but Cronbach alpha was not reported at all	Compared to TI and VC, applicants perceived FTF as significantly more fair, more favourable and with FTF they are more likely to accept job offer	Procedural justice theory and Job signalling theory	Self-monitoring and number offers received by the applicants
Bauer et al. (2004)	153 undergraduate psychology students	Field study (Non-experimental, longitudinal)	Computer-assisted TI and IVR	Process fairness, Outcome fairness and Organisational outcomes (<i>Litigation intentions, Organizational technological sophistication, Organizational attractiveness and Job acceptance intentions</i>)	Multidimensional scoring, with 11 dimensions, Cronbach alpha was reported for each dimension ranged from $\alpha = .75$ to $.94$	No different between IVR and TI. IVR was rated lower in terms of interpersonal, treatment, two-way communication and openness and applicant rated higher litigation and less acceptance intention with IVR than FTF.	Procedural justice and Job signalling theory	Cognitive ability Conscientiousness

Note. FTF= Face-to-face
IVR = Interactive voice response
TI = Telephone interview
VC = Videoconference interview

(Bauer et al., 2004; Chapman & Rowe, 2002) or postgraduate (Straus et al., 2001) and only Silvester and Anderson (2003) and Chapman et al (2003) have selected real applicants that is, UK graduate who enrolled in UK graduate training program of a multi-national oil corporation, and (2) regionally speaking, the studies were conducted at various places like UK (Silvester & Anderson, 2003), US (Bauer et al., 2004) Canada (Chapman et al., 2003) and two studies did not state their population's region (Chapman & Rowe, 2002; Straus et al., 2001). Results of all five studies were outlined in terms of: (1) influence of technology-mediated employment interview on applicant reactions, (2) types of applicant reactions, (3) the moderating and/ or mediating effects of other interview process, and (4) the role of individual differences. Finally, quality assessment of all five studies was presented.

Influence of technology-mediated employment interview on applicant reactions

From five studies, three studies were experiments (i.e., Chapman & Rowe, 2002; Silvester & Anderson, 2003; Straus et al., 2001) and the other two (Bauer et al., 2004; Chapman et al., 2003) were non-experiments. From the three experimental studies, only one study by Straus et al. (2001) examined the effects of technology-mediated interview on applicant reactions via laboratory experiment (between-subject design). The other two studies were conducted via field experiment in real recruitments settings of graduate training programme with two different designs (Chapman & Rowe, 2002; Silvester & Anderson, 2003; between-subject design and within-subject design respectively). To note, from all three experimental studies, there was no study conducted through within subject design laboratory experiment.

From the three experiments, findings showed that the interview medium (whether via TI or VC or FTF) significantly affected applicant reactions with $F(4, 77) = 3.47, p < .05, \eta^2 = .15$ and $F(1, 27) = 9.22, p < .05$ (Chapman & Rowe, 2002; Straus et al, 2001; respectively). But, Silvester and Anderson (2003) did not found any significant effect of interview medium on applicant reactions. Thus, the results are inconsistent. With respect to technology-mediated employment interview (either VC or TI), inconsistent results were also found across all three experimental studies. A laboratory experiment by Straus et al (2001) found significant negative applicant reactions to VC and TI. Similar result was found in a different study (whereby it was conducted in a field experiment at real recruitment setting) by Chapman and Rowe (2002) which is applicant reacted negatively to VC ($F(1, 27) = 0.13, p > .05$), but the result is not significant. Further, the same study conducted in real recruitment setting by Silvester and Anderson (2003) found different result where applicant reacted positively to TI with $N = 122, \text{Chi-square} = 10.10, p < .10$. Therefore, in the context of experimental studies, it can be concluded that consistent results were found on the effects of VC on applicant reactions (c.f., Chapman and Rowe, 2002; Straus et al, 2001), that is applicant reacted negatively to VC interview. However, with respect to TI, inconsistent results was found, that is Strauss et al (2001) found applicant reacted negatively to TI but, contrastingly Silvester and Anderson (2003) found positive applicant reactions to TI. Therefore, all three experimental studies on the influence of technology-mediated employment interview on applicant reactions illustrated a mixed result.

Only two studies was conducted via non-experimental method whereby Chapman et al., (2003) and Bauer et al (2004) have examined the influence of interview medium (whether FTF or TI or VC) on applicant reactions through field study/ investigation. According to Coolican (2009) field investigation may not necessarily be considered as an experiment unless random assignment (or counterbalancing for within subject design) was noted in the

procedure and if these two were absent, the field study or investigation is merely a comparison study via survey. Thus, for Bauer et al (2004) and Chapman et al (2003), both were considered as non-experimental studies at field setting, conducted via survey method with particular reference as field survey.

From these two field surveys, both Bauer et al (2004) and Chapman et al (2003) showed that types of interview medium have a significant influence on applicant reactions ($F(2, 141) = 4.09, p < .05, R^2 = .06$ & $F(8, 1516) = 14.17, p < .01$, Wilks's $\eta^2 = 0.866$ respectively). Focusing on the technology-mediated interview medium, Bauer et al (2004) investigated two types of technology-mediated job interview (TI and IVR) and Chapman et al (2003) also examined two types of technology-mediated job interview, but rather different kinds, referring to the Computer-assisted TI and VC. Findings demonstrated that consistent results were found across these two studies where TI was rated favourably by the applicants in both studies and IVR and VC were rated poorly (Bauer et al, 2004; Chapman et al., 2003; respectively). However, although the result is consistent, statistically speaking, these consistent positive reactions on TI were not significant and in these two field surveys, the applicant reactions were examined multidimensionally. Thus, although findings of both field surveys on applicant reactions toward technology-mediated employment interview were not significant, it demonstrated a consistent favourability towards TI as opposed to other technological mediums.

Finally, when comparing all five studies, experimental studies (Chapman & Rowe, 2002; Silvester & Anderson, 2003; Strauss et al., 2001) demonstrated consistent results of negative applicant reactions for VC, but TI showed an inconsistent results. Specifically, Strauss et al (2001) found applicants reacted negatively to TI and contrastingly Silvester and Anderson (2003) found positive applicant reactions to TI. On the other hand, in non-experimental studies, TI (even via computer-assisted TI) received consistent positive applicant reactions (Bauer et al., 2004; Chapman et al., 2003) unlike VC (Chapman et al, 2003) and IVR (Bauer et al., 2004). Therefore, the five studies that have been reviewed above showed an inconsistent finding of the influence of technology-mediated employment interview on applicant reactions.

Types of applicant reactions

All five studies have measured different types of applicants' reactions (see Table 2). According to Alias and Zainal (2006) and Bauer, Truxillo and Paronto (2005) applicant reactions can be measured based on a theoretical-based or empirical-based measurement. Further, Chan and Schmit (2004) have noted that different ways of scoring can produce different result of applicant reactions. Thus, these different types of applicant reactions can be differed in terms of two main criteria: (a) whether the measurement of applicant reactions were founded on theory (s) (theoretical-based) or empirical evidences (empirical-based) and (b) whether the measurement of applicant reactions were scored as global score or multidimensional score. From all five studies, four studies (c.f., Bauer et al., 2004; Chapman & Rowe; 2002; Chapman et al., 2003; Silvester & Anderson, 2003) were founded on theory (s) and only study by Straus et al. (2001) was founded on empirical evidences. Meanwhile, two studies (c.f., Chapman & Rowe, 2002; Silvester & Anderson, 2003) had globally scored applicant reactions and the other three (c.f., Bauer et al., 2004; Chapman et al., 2003; Straus et al., 2001). Hence, the results on different types of applicant reactions were then illustrated in the light of these two criteria.

Studies that were founded on theoretical-based measurement have measured applicant reactions based on theories such as job signalling theory, procedural justice theory and attribution theory (see Table 2). From job signalling theory, applicant reactions measured was applicant organizational attractiveness (c.f., Bauer et al., 2004; Chapman & Rowe, 2002), acceptance intention (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2003), litigation intentions and organization technological sophistications (c.f., Bauer et al., 2004). In terms of organizational attractiveness, results showed that applicants are more attracted to organizations that used IVR than TI although no significant different was found, and applicants were less attracted to organization that used VC than TI. So, it can be observed that inconsistent finding was found in terms of organizational attractiveness. But, for acceptance intention, applicants showed consistent less likelihood to accept job offer with VC compared to TI and IVR. Further with litigation intention, although insignificant, IVR had higher litigation intention than TI. Further, organization that used IVR was perceived as more technologically sophisticated than the TI and this showed an inconsistent result. Thus, it can be observed that, although this different applicant reactions awning under job signalling theory, a mixed result was demonstrated.

With procedural justice theory, applicant perceived fairness, perceived interview difficulty, perceived favourable outcome (c.f., Bauer et al., 2004; Chapman et al., 2003), and outcome fairness (c.f., Bauer et al., 2004) were examined. Results showed that VC and IVR were perceived as fairer than TI although statistically not significant. Contradictorily, in terms of interview difficulty and perceived favourable outcome, VC and IVR were perceived as more difficult and rather lower in perceived favourable outcome compared to TI. Thus, in between all these types of applicant reactions that sunshade under one theory of procedural justice, results showed an inconsistent finding.

Further, based on attribution theory (c.f., Silvester & Anderson, 2003), that is, whether the applicant attributed the interview outcomes as a result of personal vs. universal causes, it was found that applicants produced significantly more personal attributions in TI (N = 146) as compared to non-technological employment interview (in this case, FTF; N = 112) with Chi-square = 10.10, $p < .10$. The personal attribution in this study was noted as if the speaker believes it to be relatively unique to him or her with the item used to measure this personal attribution is *"They chose me because I had been team captain three years in a row"*. The present study would like to humbly note that, this item can be considered as a positive item or positive applicant reaction, in such a way that, the applicant attributed the outcome as a result of his or her own positive perception of his or her own ability. Although result showed positive reaction on technologically-mediated employment interview, comparatively speaking, the result was in contradictory with some types of applicant reactions under job signalling theory (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2003) and those under procedural justice theory (c.f., Bauer et al., 2004; Chapman et al., 2003). Hence, across three different theories, that measured different types of applicant reactions, a mixed finding of applicant reaction was found.

For empirical-based study (i.e., Straus et al., 2001), the types of applicant reactions examined were likability (that was noted as job and organizational attractiveness), difficulty and understanding of conversation, and applicant self-comfort and consciousness. Findings showed that TI as compared to VC is more likable ($M = -17$; $SD = 1.01$ vs. $M = 24$; $SD = .87$), conversation rather less difficult ($M = .02$; $SD = 1.05$ vs. $M = -46$; $SD = .97$), and

understandable ($M = .07$; $SD = .97$ vs. $M = -.46$; $SD = .98$) and applicants feel more comfortable ($M = -.20$; $SD = .85$ vs. $M = .29$; $SD = .91$) and less self-conscious ($M = -.79$; $SD = .81$ vs. $M = .18$; $SD = .82$). It can be concluded that in each types of applicant reactions the results of Straus et al (2001) showed a consistent positive applicant reactions on TI than VC. However, this consistent finding of empirical-based study was in contradiction with all four theoretical-founded studies. Thus, to compare between empirical vs. theoretical based studies, empirical-based study showed a consistent result although different types of applicant reactions were measured and the result of theoretical-based studies demonstrated a rather mixed finding.

The different types of applicant reactions may also resulted from the different ways of scoring the applicant reactions (Chan & Schmit, 2004). As it has been noted earlier, Chan and Schmit (2004) in their construct-oriented approach had argued that different global score can produce a more significant reaction. With global scoring of applicant organizational attractiveness a significant different reactions was found between FTF and VC (c.f., Chapman & Rowe, 2002). Similarly, global scoring of applicant causal attribution also yielded a significant different of reaction between FTF and TI and VC (c.f., Silvester & Anderson, 2003). In addition, for both types of applicant reactions, applicants were less attracted and produced more universal/ negative attribution toward technology-mediated interview. Hence, for global scoring not just a significant result found, but result showed a consistent significant negative applicant reactions. On the other hand, for studies such as Straus et al (2001), Chapman et al (2003) and Bauer et al (2004) that have multidimensionally scored applicant reactions, each study produced different types of applicant reactions and overall the results illustrated a mixed finding. Hence, it can be concluded that, comparing between global vs. multidimensional score, a mixed result was illustrated with global score yielded a consistent and significant reactions while multidimensional scoring produced a mixed result.

The mediating and/or moderating effects of other interview process

Interview processes consisted of interview content, focus, structure and medium/modality (Anderson, 2003; Anderson et al., 2001; Rynes et al., 2002). Studies have begun looking at how each process may mediate or moderate each other (c.f., Alias, 2007; Chapman & Rowe, 2002). From all five studies, there was no study examine any mediating effect of other interview processes, and only one study had examined the moderating/ interaction effect of other interview process (that is only interview structure) on the effects of technology-mediated job interview on applicant reactions that is study conducted by Chapman and Rowe (2002). Through multivariate tests, the results showed a significant interaction effect of interview structure and interview medium (in this case, VC vs FTF) with $F(8, 78) = 2.03, p < .05, \eta^2 = .19$. Particularly, interview structure significantly interact with the effect of VC on global score of applicant reactions on organizational attractiveness ($F(2, 91) = 3.72, p < .05, \eta^2 = .10$) and applicant self-rating ($F(2, 91) = 4.36, p < .05, \eta^2 = .10$). Authors also noted interesting findings on VC, that is, applicants were more attracted to the organizations if the interview is more structured compared to semi and less structured interview. Therefore, results not just illustrated the interaction effect of interview structure, with particular reference to VC, the finding demonstrated the positive influence of structure on applicant reactions.

The role of individual differences

Across all five studies reviewed, only two studies had examined the role of individual differences on the influence of technology-mediated employment interview on applicant reaction. Individual differences studied are applicant's self-monitoring (Chapman et al., 2003), cognitive ability (Bauer et al., 2004), conscientiousness (Bauer et al., 2004) and number of job offers received by the applicant (Chapman et al., 2003).

For self-monitoring (c.f., Chapman et al., 2003), result showed that, it significantly moderate the relationship between interview medium (FTF, VC & TI) and perceived fairness with $\Delta R^2 = .023$, $\Delta F(2, 759) = 9.75$, $p < .01$. But, self-monitoring did not moderate the relationship between interview medium and other types of applicant reactions like acceptance intention ($F(2, 761) = .453$, $p = .64$), expectancy of a favourable outcome ($F(2, 756) = 1.874$, $p = .15$), and perceived interview difficulty ($F(2, 756) = .12$, $p = .89$). Further, among three medium finding also showed that for TI, as self-monitoring increased, perceived fairness decreased. But, in FTF it was found that, as applicant self-monitoring increased, their perceived fairness also increased. There was no moderating effect of self-monitoring found on perceived fairness in VC. So, it can be seen that only perceived fairness toward interview medium was moderated by self-monitoring, and in between VC and TI, self-monitoring only moderate the influence of TI on applicant reactions.

As for job offers received by the applicants (c.f., Chapman et al., 2003), results showed that it significantly moderate the relationship between interview medium and applicant reaction with $\Delta R^2 = .011$, $\Delta F(2, 532) = 3.12$, $p = .05$. But, similar to self-monitoring, number of job offers did not have any moderating effect on other types of applicant reactions (acceptance intention, $F(2, 542) = 2.15$, $p = .12$; expectancy of favourable outcome, $F(2, 536) = 1.29$, $p = .28$; perceived interview difficulty, $F(2, 535) = .85$, $p = .43$). In particular reference to TI and VC, results showed that the more numbers of job offers received by an applicant, the lesser the applicant perceived fairness. Thus, it can be observed that moderating effect of numbers of job offers only affected the applicant perceived fairness whereby it demonstrated negative relationships in the case of TI and VC.

Moreover, the role of applicant cognitive ability and conscientiousness on applicant reactions toward technology-mediated employment interview were also examined (c.f., Bauer et al., 2004). Results showed no significant interaction between applicant's cognitive ability and conscientiousness with interview medium (FTF, IVR & Computer-assisted TI) on applicant organizational attractiveness ($\Delta R^2 = .00$, $F(2, 146) = 0.30$, *ns.* and $R^2 \Delta R^2 = .01$, $F(2, 146) = 0.55$, *ns.*, respectively) and acceptance intention ($\Delta R^2 = .00$, $F(2, 146) = 0.32$, *ns.* and $\Delta R^2 = .00$, $F(2, 146) = 0.38$, *ns.*, respectively). Thus, illustrated results showed that, both applicant cognitive ability and conscientiousness failed to show any effect on applicant organizational attractiveness and acceptance intention toward any of the interview medium (FTF, IVR and Computer-assisted TI).

Finally, the above review illustrated the important role of applicant self-monitoring and number of job offers received by the applicants in affecting the relationship between technology-mediated interview and applicant reactions. Even though, contrastingly, findings on the role of these two individual differences variables are inconsistent with applicant cognitive ability and conscientiousness. Thus, it can be seen that the results of different types of individual differences demonstrated a mixed finding.

Quality assessment

All five studies were assessed on their qualities based on the porforma of quality assessment criteria used by Mitrofan et al (2008). Additionally, all five studies are quantitative in nature and there was no qualitative data in any of the studies. Thus, the results of the quality assessment were presented with these following assessment criteria: (1) general criteria of quantitative studies, (2) criteria for experimental studies, (3) criteria for non-experimental studies and finally (4) an overall view on all five quantitative studies was presented.

Quantitative studies: General criteria

All five studies were evaluated based on general criteria for quantitative studies that included the issue of measurement, power analysis, sampling technique and ecological validity issue. In the issue of measurement, all five studies were conducted with quantitative research approach whereby applicant reactions were measured via applicant reactions scales. Further, apart from validity and reliability of applicant reactions measurement, it can be seen that measurement of applicant reactions also stranded on the issue of empirical vs. theoretical based measurement. This is most likely due to strong emphasis on a theoretical-based measurement (as opposed to empirical-based) for theory building by some researchers as noted by Coolican (2009). Some measurement of applicant reactions utilised were founded on either job signalling theory (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2003) and/ or procedural justice theory (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2003) and/or attribution theory (Chapman & Rowe, 2002; Silvester & Anderson, 2003). However, some scale used to measure applicant reactions was rather empirical-based (e.g., Straus et al., 2001). Although empirically founded, Straus et al (2001) reported a coefficient alpha of .82 for the scale used to measure applicant reactions. This can be considered as a reliable scale in terms of its inter-item reliability as noted by Hinton, Brownlow, McMurray and Cozen (2004) a $\alpha = .80$ and above is considered a reliable test. Other scales used to measure applicant reactions which are founded on specific theory also demonstrated reliable coefficient alpha (e.g., Chapman & Rowe, 2002, $\alpha = .82$) with only one study reported kappa reliabilities (e.g., Silvester & Anderson, 2003, $k = .46$ to $.52$), one study did not report any reliability coefficient (e.g., Chapman et al., 2003) and only one study that is by Bauer et al., (2004) has examined the reliability coefficient of every dimensions of its applicant reaction scales used, namely job-relatedness-predictive, information known, chance to perform, reconsideration opportunity, feedback, consistency of administration, openness, interpersonal treatment, propriety of questions, two-way communication and job relatedness-content ($\alpha = .75, .86, .94, .92, .84, .89, .86, .91, .86, .89$ & $.85$ respectively). Thus, with specific reference to reliability, except Chapman et al (2003), all studies demonstrated a reliable coefficient alpha although the measurements differed in terms of theoretical vs. empirical foundation.

In terms of sample, all five studies did not clearly describe their sampling technique (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2004; Silvester & Anderson, 2003; Straus et al., 2001). Strauss et al (2001), which presumably most studies did not use random sampling technique, thus creating possible selection bias as according to Coolican (2009) and non-random sampling technique may not have sufficient representativeness of the population because not everyone in the population have the equal chance to be selected. Further, none among the five studies reported any calculations of power analysis (neither priori nor post hoc power analysis) and no confidence intervals for findings were specified. Thus, it was not possible to exclude Type II errors in any of these

studies and this further complements the presumption of the absence of random sampling technique across all five studies.

In terms of ecological validity, three studies (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Straus et al., 2001) were not conducted in its natural setting, and only studies by Silvester and Anderson (2003) and Chapman et al (2003) were conducted in real recruitments setting by which participants consisted of real job applicants attending interview for UK graduate training programme. Ecological validity as noted by Coolican (2009) is the extent to which results can be generalised in its own natural setting. Hence, across five studies except Silvester and Anderson (2003) and Chapman et al (2003), findings on applicant reactions in other studies (c.f., Bauer et al., 2004; Chapman & Rowe, 2002; Straus et al., 2001) have lower ecological because they were conducted in a controlled setting. Thus, the findings cannot be generalized to the real job applicants in real recruitment setting.

Experimental studies

There are three experimental studies (Chapman & Rowe, 2002; Silvester & Anderson, 2003; Straus et al., 2001) out of five studies selected. All experimental studies were appraised based on general criteria for quantitative studies as presented in Table 1. In addition, specific criteria for experimental studies were also included which are in terms of design, random assignment, counterbalancing, manipulation check and control of all possible extraneous variable (internal validity).

In terms of design, two experimental studies (Chapman & Rowe, 2002; Silvester & Anderson, 2003) did not clearly describe the design used in their study and only Straus et al (2001) clearly mentioned their use of mixed design. Nevertheless, Chapman and Rowe (2002) noted the procedure of random assignment as control of subject variability while Silvester and Anderson (2003) noted counterbalancing of experimental treatments to encounter possible order effects. Thus, it can be said that, these two experimental procedures has become the indicator to determine the experimental design used by these two studies (Chapman & Rowe, 2002; Silvester & Anderson, 2003) which are between-subject and within-subject design respectively.

In terms of manipulation check, that is according to Kohn and Dipboye (1998) is an essential procedure to check the success of the manipulation of independent variable in an experiment. It was found that only Straus et al (2001) demonstrated and clearly mentioned the role of manipulation check. However, with pre and post-interview measure used in Chapman and Rowe (2002), it can be assumed that this is a way of checking the success of manipulation of independent variable although it was not clearly mentioned.

In terms of internal validity, it can be presumed that all three experiments (Chapman & Rowe, 2002; Silvester & Anderson, 2003; Straus et al., 2001) have moderately high internal validity. This is especially true for study that used random assignment in between-subject design (Chapman & Rowe (2002) and counterbalancing of treatments in within-subject design (Silvester & Anderson, 2003). However, in all three experiments, it was unclear whether participants were 'blind' to the interview medium, either VC or TI, (referring to single blind procedure) and even 'blinding' the experimenters (referring to double blind procedure) was not clearly mentioned. Thus, there might have been confounding effect of participant and experimenter expectancies which may threaten internal validity of the studies,

but to reject totally the internal validity of all three experimental studies may not be a judicious evaluation.

Non-experimental studies

There are only two non-experimental studies (Bauer et al., 2004; Chapman et al., 2003) out of five studies selected. As argued earlier these two non-experimental studies are more of comparison survey with reference as field survey. Thus, based on assessment criteria of survey as presented in Table 1, non-experimental studies were evaluated in terms of its design and efforts made to ensure better response.

In terms of design, Bauer et al., (2004) noted clearly their design as longitudinal design but another study by Chapman et al., (2003) failed to note clearly that the study was conducted through cross-sectional survey. In relation with response rate, although designs used by these two studies are different, both studies did not mention accurately how many surveys were distributed initially and how much is the accurate response rate. As longitudinal design has a high risk of participant mortality as noted by Coolican (2009) and Shaughnessy, Zechmeister and Zechmeister (2008), Bauer et al., (2004) failed to mention the response rate at Time 1 and Time 2 of their study. Thus, apart from unclear description of design (i.e., Chapman et al., 2003), both studies also did not clearly demonstrate any efforts to ensure a good response rate and this, consequently made possible the presence of mortality threat.

Quantitative studies: Overall view

In summary, among methodological flaws in all five studies reviewed (since all reviewed studies are quantitative) are possibly being underpowered and non-random sampling technique. Other possibilities include unreported reliability of the measures used (i.e., Straus et al., 2001) and also inadequate addressing of possible biasing variables. Furthermore, findings of studies conducted in a specific recruitment setting (i.e., Chapman et al., 2003; Silvester & Anderson, 2003) and so specific educational context (i.e., Bauer et al., 2004; Chapman & Rowe, 2002; Chapman et al., 2003; Straus et al., 2001) may have limited the generalizability of the findings to real recruitment context and other real organizational recruitment context.

DISCUSSION

In the light of the reported results, specific discussion was centred on thematic review and subsequently, a general discussion was presented. Finally, key messages were outlined as a conclusion and a hypothetical model of applicant reactions on technology-mediated employment interview was proposed as guideline for future scientific inquiries.

Discussion on thematic review

In the light of thematic review presented on the results of all five studies, this specific discussion section discussed (1) influence of technology-mediated employment interview on applicant reactions, (2) types of applicant reactions, (3) the mediating and/or moderating effects of other interview process and (4) the role of individual differences.

Influence of technology-mediated employment interview on applicant reactions

Findings of all five studies produced inconsistent results with experimental studies (Chapman & Rowe, 2002; Silvester & Anderson, 2003; Strauss et al., 2001) showed consistent results of negative applicant reactions on VC, but inconsistent result for TI. This inconsistent result was perhaps due to differences in methodology (i.e., Chapman & Rowe, 2002, via field experiment vs. Straus et al., 2001, via lab experiment). But, two studies (c.f., Silvester & Anderson, 2003; Straus et al., 2001) used different methodologies demonstrated a consistent result. This consistent result was perhaps because both studies examined the same technology-mediated interview, referring to VC. Hence, it can be concluded that when two different methodologies were employed it could yield inconsistent applicant reactions. But, careful examination is needed since different research methodologies also produced the consistent finding where the role of technologies used as medium for the employment interview might be the significant support for its consistency. In other words, the same medium used in examining its effect on applicant reactions even using different methodologies may actually produce consistent applicant reactions. Hence, in experimental studies, inconsistent results may not necessarily caused by methodological differences, but possibly due to the differences in technological medium used.

On the other hand, in non-experimental studies, TI (even via computer-assisted TI) received a consistent positive applicant reaction (Bauer et al., 2004; Chapman et al., 2003) unlike VC (Chapman et al, 2003) and IVR (Bauer et al., 2004). But, the results are not significant. These showed that, the use of technology-mediated interview (either TI or VC or IVR) may not have significant impact on applicant reaction by which technologies used in job interview were rated unfavourably by the applicants. In other words, applicant did not favour any technology-mediated employment interview. Perhaps due to missing non-verbal cues impeded by technologies as Chapman et al (2003) themselves quoted this opinion of Gatewood and Field who noted non-verbal cues play an important key role for the applicant to convey themselves favourably and to exchange information. However, the positive side of this is, since there was no significant difference among all technological medium, organization may opt for the most cost efficient technology such as TI as oppose to VC and IVR. Nonetheless, it is actually a great challenge to choose between cost-efficient technology and securing the richness of non-verbal cues.

Types of applicant reactions

From the findings of all five studies reviewed, different types of applicant reactions studied produced inconsistent results on all types of technology-mediated interview (VC vs. IVR vs. TI). As noted earlier Alias and Zainal (2006) and Bauer et al (2005), applicant reactions can differed based on its theoretical foundations of measurement. Perhaps, because of the differences in the theoretical foundation in applicant reactions measurement and also because some study was rather empirically-founded (i.e., Straus et al., 2001), this different types of applicant reactions were found inconsistent across different types of technology-mediated job interview. Perhaps, future research may consider to actually examining the different types of applicant reactions based on a theory. That is, by utilizing theoretical-founded measurement of applicant reactions. This is because even with a single theory, different types of applicant reactions showed inconsistent results. For instance, Chapman and Rowe (2002) had showed that with measurement of applicant acceptance intention and organizational attractiveness founded on job signalling theory, the result showed that with VC, applicants are more attracted to organization but they are less likely to accept the job offer. In other words, the use of technologies have made the applicants more attracted to the organization as the organization was perceived to be more technology-savvy and

sophisticated, but the use of technologies may also lowered the acceptance intention. On the other hand study done by Chapman et al (2003) who had used two different theories also demonstrated an inconsistent result. Thus, as single theory consisted of different types of reactions yielded inconsistent results, for study that will be using multiple theories, it would requires multiple measures.

In contrast, not all research on applicant reactions was founded on theory by which it was more empirically founded. For example study by Straus et al (2001) who measured applicant reactions such as likability, difficulty and understanding of conversation as well as applicant self-conscious and comfort. With these different types of applicant reactions measured, in addition to empirical-based measures, interestingly results showed a consistent finding. Therefore, to compare between empirical vs. theoretical-based applicant reactions measure, research need to further combine and compare between empirical vs. theoretical-based measurement of applicant reactions as well as to compare between theories.

Furthermore, it was also argued by Chan and Schmit (2004) that global score of applicant reactions can produce a better prediction of applicant reactions which nevertheless was done by only Silvester and Anderson (2003) who had measured applicant reactions based solely on attribution theory and found a significant result. This result is consistent with Chapman and Rowe (2002). But, inconsistent results were found across studies such as Straus et al (2001), Chapman et al (2003) and Bauer et al (2004) who had scored applicant reactions multidimensionally. So, it can be said that, multidimensional scoring of applicant reactions contributed to the inconsistent findings. Therefore, future research may consider using several measurements founded from different theories, but scoring is done globally as suggested by Chan and Schmit (2004) in order to better explain the differences and consistencies in the light of theories of applicant reactions as well as possible contribution of global scoring. Finally, from all five studies, as empirical vs. theoretical-based studies illustrated a mixed finding, similarly, mixed finding was also found across studies that used either global or multidimensional scoring. Thus, it can be concluded with different types of applicant reactions, it illustrate that applicant reaction is a multiple construct, that requires multiple measures and different ways of scoring

The mediating/ moderating effects of other interview process

With only Chapman and Rowe (2002) who had examined the role of other interview process (specifically, interview structure) the effect illustrated is known as interaction effect. Interestingly, with this interaction effect of interview structure, it was noted by the authors that applicant reacted favourably to VC when the interview conducted is highly structured, although initially there was no significant effect of VC on applicant reactions. In other words, applicant interviewed via VC were most attracted to organizations whose interviewers employed structured interview. The use of VC has been argued by several researchers (i.e., Chapman et al., 2001; Silvester & Anderson, 2003; Straus et al., 2001) to be technologically intimidating compared to FTF. But it seems that, the presence of structure had actually reduced the anxiety and intimidation level of VC. Furthermore, interview processes can be classified into interview content, focus, structure and modality as outlined in most review of applicant reactions on employment interview (i.e., Anderson et al., 2002; Anderson, 2003; Rynes et al., 2002). However, so far, only interaction effect of interview structure was examined (e.g., Chapman & Rowe, 2002), thus, it calls for more future research to examine possible moderating and/ or mediating effect of other interview process variables.

The role of individual differences

Two studies (Bauer et al., 2004; Chapman et al., 2003) had investigated the role of individual differences on the impact of technology-mediated employment interview on applicant reactions. Among individual differences studied are applicant's self monitoring (Chapman et al., 2003), cognitive ability (Bauer et al., 2004), conscientiousness (Bauer et al., 2004) and number of job offers received by the applicant (Chapman et al., 2003). Findings demonstrated the important role of applicant self-monitoring and number of job offers received by the applicants in affecting the relationship between technology-mediated interview and applicant reactions, although contrastingly, findings on the role of these two individual differences variables are inconsistent with applicant cognitive ability and conscientiousness. It was argued that it is essential to examine views of applicant with high cognitive ability and conscientiousness is highly desirable due to the predictive power of the test to measure the former and the notion of goal-directed and strong-willed of the latter (Bauer et al., 2003). However, high predictive power of cognitive ability test was actually found to produce negative reactions, especially when it is lower in job-relatedness (c.f., Smither Reily, Millsap, Pearlman & Stoffey, 1993) and it can be argued that, highly conscientious individuals may not necessary be open to the technologies. These two arguments could possibly justify why results in Bauer et al., (2004) in contradict with Chapman et al., (2003). This inconsistency in finding also illustrates the need to further examination of other individual differences.

With particular reference to Chapman et al (2003) who had found a significant role of applicant self-monitoring and number of offers received by applicant on the influence of technology-mediated job interview toward applicant reactions. It was argued that these two individual variables play a significant role especially when the job (e.g., sales positions) requires a high self-monitors, nevertheless these individuals can be very much susceptible to react negatively to the technologies used in job interview. It was also further noted that top applicants usually received the most offers, and thus careful use of technologies are needed in job interview as it may have substantial effect on these applicants to turn down the job offer. In other words, self-monitoring and numbers of job offers should be considered. In short, more individual differences can be examined by future research.

General discussion

This present systematic review focused on synthesizing and determining the quality of existing empirical evidences on the influence of technology-mediated interview on applicant reactions. The present study had selected only five studies but all were critically appraised. Critical evaluations of five selected studies indicated that these studies had significant major and minor flaws. Among the major flaws are the absence of power analyses and unclear description of sampling techniques. As for the minor flaws, all five studies failed to clearly justify the validity and reliability values for the measures used and as noted earlier, some researcher are more frown on theoretical-based research, one study (c.f., Straus et al., 2001) did not met this criterion. Thus, with these major and minor flaws, overall, the quality of evidence is quite poor. However, the flaws noted should be a good guide for future research to produce more high quality scientific inquiries.

In summary, from experimental studies (Chapman & Rowe, 2002; Silevester & Anderson, 2003; Strauss et al., 2001), consistent results of negative applicant reactions was

found for VC but TI showed an inconsistent results (c.f., Silvester & Anderson, 2003; Straus et al., 2001). On the other hand, in non-experimental studies, TI (even via computer-assisted TI) showed equivocal evidences of positive applicant reactions (c.f., Bauer et al., 2004; Chapman et al., 2003) unlike VC (Chapman et al, 2003) and IVR (Bauer et al., 2004). Therefore, from holistic view, findings of all reviewed past studies on the influence of applicant reactions are mixed for all types of technology-mediated job interview.

It is also noteworthy to mention some psychometrics issue should be addressed that is the absence of reports on validity of the scales used across all five studies and one study had used empirical-based measures and one study did not report any reliability coefficient (Straus et al., 2001 & Chapman et al., 2003; respectively). Although measurement used in Chapman et al., (2003) are theoretically founded, the absence of reliability reports, and absence of validity reports across all five studies might limits the quality and comparability of the existing evidences. Limited generalizibility also applied to all studies because the selection of students as participants and also artificial recruitment setting as done in Straus et al., (2001).

Comparing with the last narrative review by only Anderson (2003) had reviewed the role of technology-mediated job interview on applicant reactions, cohere with the present systematic review, it can be concluded that there is insufficient and contradictory research evidence supporting applicant reactions on technology-mediated employment interview.

The present study is not without its own limitations. The present study did not have accessibility to the gray literature database of the American Psychological Association named PsycEXTRA. This is because PsycEXTRA is an online database for publication of gray literature. Further, though initially 18 abstracts were identified only five studies were selected because the excluded abstract did not have a clear description of statistical values which may impede the interpretation of findings. Additionally, the present study also has a limited access to unpublished journals and theses. The specific period of published papers selected, that is from 2000-2010 also limit the review of the present study whereby early research on this area was not reviewed. Finally, both computer-assisted and hand searching search strategy was limited to available online databases and printed journals at the local library. Thus, the present study has limited access to PDF-Full text of published papers and also limited access to journals such as *European Journal of Occupational and Organizational Psychology* and *Journal of Business Psychology* due to limited subscription by the local library. The present systematic review also limited to one interview process named interview medium that focused specifically to technology-mediated employment interview. Moreover, the review also limited to studies published within the year 2000-2010. Therefore, future systematic review may consider to conduct a systematic review on literature published prior to the year 2000 and to also review literature on the influence of other interview processes (i.e., structure, focus and content) on applicant reactions.

CONCLUSION

Overall, in this area, there are only few minor and major flaws. Although only quite few, it is important to take into account all the methodological flaws to guide more high quality future research in this specific area. There are several key messages that can be noted from the present systematic review: (1) there is a need for more rigorous qualitative and quantitative studies especially adequately powered studies, (2) there is a need for further examination of theoretically founded measures as opposed to empirical-based measurement of applicant reaction, (3) there is a need for further validity and reliability estimation for all

existing measures of applicant reactions, (4) there is a need to further analyse the use of global vs. multidimensional scoring as suggested by Chan and Schmit (2004), and finally, (5) further examination is needed for potential moderating and/or mediating effect of other interview processes (i.e., content, focus and structure) and individual differences variables. All these key messages were noted in a hypothetical research model depicted in Figure 1 as guideline for future research. It is also worthy to note that all the key messages are actually the keys to a more accurate and comprehensive future research report. However, the present study acknowledge the limitless complexity of investigating applicants reactions on technology-mediated interview especially the methodological challenges in designing and conducting the studies as well as difficulty of accessibility to real recruitment and selection conducted by organization. Further, psychometrically speaking, the construct of applicant reaction is arguably challenging to be measured as it requires different level of analyses (e.g., empirical vs. theoretical foundation; multidimensional vs. global scoring). Therefore, in conclusion, more future research is needed to examine the influence of different technologies used in employment interview on applicant reactions, and it is an exigent call for future research on this area especially because applicant reactions have multiple constructs with multiple measurements that require different ways of scoring.

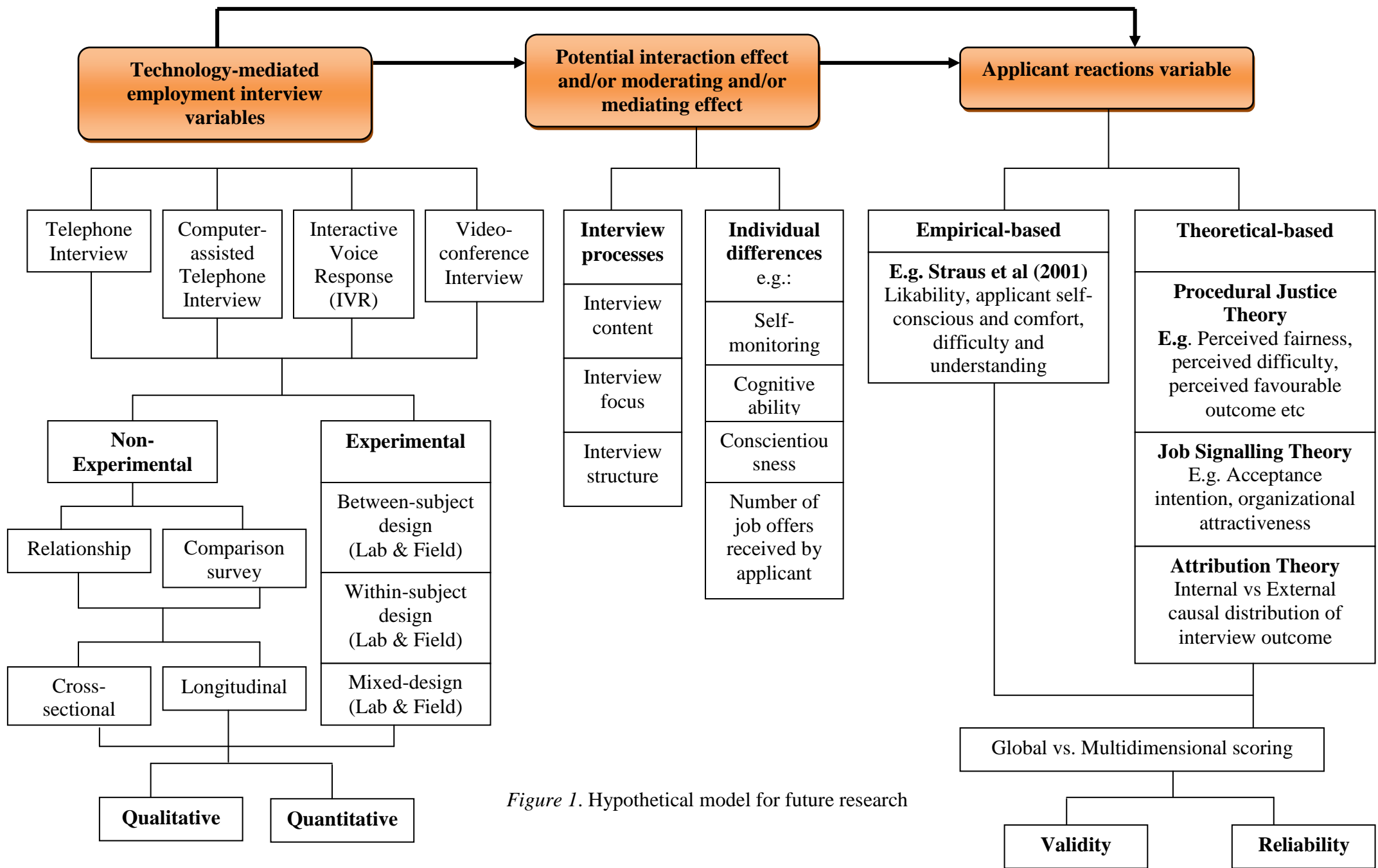


Figure 1. Hypothetical model for future research

REFERENCES²

- Abdullah, S. (2009). *The effects of PBDI and SI interview content on applicant reactions*. Unpublished dissertation. International Islamic University Malaysia (IIUM)
- Alias, A. (2007). *Pengaruh fokus temuduga dan kandungan temuduga berstruktur ke atas reaksi pemohon*. Unpublished dissertation. Universiti Kebangsaan Malaysia (UKM), Malaysia.
- Alias, A., & Zainal., A.J. (2006). *Reaksi pemohon terhadap temuduga pekerjaan: Model dan teori terkini, dan arah masa depan*. Paper presented at Seminar Serantau Psikologi dan Komuniti (20-21 December 2006) organised by Pusat Psikologi dan Pembangunan Manusia, Universiti Kebangsaan Malaysia at Hotel Renaissance, Kuala Lumpur, Malaysia.
- Anderson, N. (2003). Applicants and recruiters reactions to new technology in selection: A critical review and agenda for future research. *International Journal of Selection and Assessment*, 11, 125-136.
- Anderson, N., & Ostroff, C. (1997). Selection as socialization. In N. Anderson, & P. Herriot, (Eds.) *International handbook of selection and assessment* (pp. 413-440). United Kingdom: John Wiley & Sons, Ltd.
- Anderson, N., Born, M., & Cunningham-Snell, N. (2001). Recruitment and selection: applicant perspectives and outcomes. In N. Anderson, D. S. Ones, H. K. Sinnagil, & C. Viswesvaran (Eds.), *Handbook of industrial, work and organisational psychology (Volume 2: Personnel psychology)* (pp. 200-218). London, United Kingdom: Sage Publications.
- Barber, A. E., Hollenbeck, J. R., Tower, S. L., & Philips, J. M. (1994). The effects of interview focus on recruitment effectiveness: A field experiment. *Journal of Applied Psychology*, 79, 886-896.
- Bauer, T. N., Truxillo, D. M., Paronto, M. E., Weekley, J. A., & Campion, M. A. (2004). Applicant reactions to different selection technology: Face-to-face, interactive voice response, and computer-assisted telephone screening interviews. *International Journal of Selection and Assessment*, 12, 135-148. *
- Bies, R. J., & Shapiro, D. L. (1988). Voice and justification: Their influence on procedural fairness judgements. *Academy of Management Journal*, 31, 676-685.
- Borman, W. C., Hanson, M. A., & Hedge, J. W. (1997). Personnel selection. *Annual Review of Psychology*, 48, 229-337.
- Chan, D., & Schmitt, N. (2004). An agenda for future research on applicant reactions to selection procedures: A construct oriented approach. *International Journal of Selection and Assessment*, 12, 9-23.
- Chapman, D. S., & Rowe, P. M. (2002). The influence of videoconference technology and interview structure on the recruiting function of the employment interview: A field experiment. *International Journal of Selection and Assessment*, 10, 185-197.*
- Chapman, D. S., & Webster, J. (2003). The use of technologies in the recruiting, screening, and selection processes for job candidates. *International Journal of Selection and Assessment*, 15, 113-120.
- Chapman, D. S., & Zweig, D. I. (2005). Developing a nomological network for interview structure: Antecedents and consequences of the structured interview selection. *Personnel Psychology*, 58, 673-702.

² “*” indicates chosen reviewed article

- Chapman, D. S., Uggerslev, K. L., & Webster, J. (2003). Applicant reactions to face-to-face and technology-mediated interviews: A field investigation. *Journal of Applied Psychology, 88*, 944-953. *
- Chapman, D., & Rowe, P. M. (2002). The impact of videoconference technology, interview structure, and interview gender on interviewer evaluations in the employment interview: A field experiment. *Journal of Occupational and Organizational Psychology, 74*, 279-289. *
- Conway, J. M., & Peneno, G. M. (1999). Comparing structured interview question types: Construct validity and applicant reactions. *Journal of Business Psychology, 13*, 485-506.
- Coolican, H. (2009). *Research methods and statistics in psychology*. Oxon, England: Hodder & Stoughton.
- de Wolff, C. J., & van den Bosch, (1998). The selection process. In P. J. D. Drenth, H. Thierry, & C. J. de Wolff, (Eds.). *Handbook of work and organizational psychology: (Volume 3: Personnel psychology)*(pp. 33-58). Oxford, United Kingdom: Psychology Press.
- Dipboye, R. L., & Gaugler, B. B. (1993). Cognitive and behavioral processes in the selection interview. In N. Schmitt, W. C. Borman, & Associates (Eds.). *Personnel selection in organizations* (pp. 135-170). San Francisco, CA: Jossey-Bass Publishers.
- Herriot, P. (1989). Selection as a social process. In M. Smith & I. Robertson (Eds.). *Advances in selection and assessment*. (pp. 171-187). London, England: John Wiley & Sons Ltd.
- Hinton, P. R., Brownlow, C., McMurray, I., & Cozens, B. (2004). *SPSS explained*. East Sussex, United Kingdom: Routledge, Taylor & Francis Group.
- Hough, L. M., & Oswald, F. L. (2000). Personnel selection: Looking toward the future: Remembering the past. *Annual Review of Psychology, 51*, 631-664.
- Hysong, S. J., & Dipboye, R. L. (1999). The recruiting outcomes of interview structure and post interview opportunity. Retrieved from <http://www.siop.org/conferences/99Con.aspx> on Wednesday, 4 October, 2008.
- Kohn, L. S., & Dipboye, R. L. (1998). The effects of interview structure on recruiting outcomes. *Journal of Applied Social Psychology, 28*, 821-843.
- Kroeck, K. G., & Magnusen, K. O. (1997). Employer and job candidate reactions to videoconference job interviewing. *International Journal of Selection and Assessment, 5*, 137-142.
- Landy, F. J., Shankster, L. J., & Kohler, S. S. (1994). Personnel selection and placement. *Annual Review of Psychology, 45*, 332-340.
- Latham . G. P., & Finnegan, B. J. (1993). Perceived practicality of unstructured, patterned, and situational interviews. In H. Schuler, J. L. Farr, & M. Smith (Eds.), *Personnel selection and assessment: Individual and organizational perspectives*. (pp. 41-56). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Liden, R. C., & Parsons, C. K. (1986). A field study of job applicant interview perceptions, alternative opportunities, and demographic characteristics. *Personnel Psychology, 39*, 109-123.
- Martin, C. L., & Nagao, D. H. (1989). Some effects of computerized interviewing on applicant response. *Journal of Applied Psychology, 74*, 72-80.
- Maurer, S. D., Howe, V., & Lee, T. W. (1992). Organisational recruiting as marketing management: An interdisciplinary study of engineering graduates. *Personnel Psychology, 45*, 807-833.

- Mitrofan, I., Paul, M., & Spencer, N. (2008). Is aggression in children with behavioural and emotional difficulties associated with television viewing and video game playing? A systematic review. *Child: Care, Health and Development*, 35, 5-15.
- Posthuma, R.A., Morgeson, F.P., & Campion, M.A. (2002). Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time. *Personnel Psychology*, 55, 1-81.
- Rynes, S. L. (1989). The employment interview as a recruitment device. In R. W. Eder & G. R. Ferris (Eds.), *The employment interview: Theory, research, and practice*. (pp. 127-142). Newbury Park, CA: Sage Publication.
- Rynes, S. L. (1991). Recruitment, job choice, and post-hire consequences. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational Psychology* (pp. 398-445). Palo Alto, CA: Consulting Psychologists Press.
- Rynes, S. L. (1993a). When recruitment fails to attract: Individual expectations meet organizational realities in recruitment. In H. Schuler, J. L. Farr & M. Smith, (Eds.), *Personnel selection and assessment: Individual and organizational perspectives* (pp. 27- 40). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Rynes, S. L. (1993b). Who's selecting whom? Effects of selection practices on applicant attitudes and behavior. In N. Schmitt, W. C. Borman, & Associates (Eds.), *Personnel selection in organizations*. (pp. 240-274). San Fransisco, CA: Jossey-Bass.
- Rynes, S. L., Barber, A. E., & Varma, G. H. (2000). Research on employment interview: Usefulness for practice and recommendation for future research. In C. L. Cooper & E. A. Locke (Eds.), *Industrial and organizational psychology: Linking Theory with Practice*. (pp. 250-277). Oxford, United Kingdom: Blackwell Publishers Ltd.
- Schuler, H. (1993). Social validity of selection situations: A concept and some empirical results. In H. Schuler, J. L. Farr & M. Smith (Eds.), *Personnel selection and assessment: Individual and organizational perspectives*. (pp. 11-26). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Shaughnessey, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2008). *Research methods in psychology*. Boston: McGraw Hill.
- Silvester, J., & Anderson, N. (2003). Technology and discourse: A comparison of face-to-face and telephone employment interviews. *International Journal of Selection and Assessment*, 11, 206-214.*
- Silvester, J., Anderson, N., Haddleton, E., Cunnigham-Snell, N., & Gibb, A. (2000). A cross modal comparison of telephone and face-to-face selection interviews in graduate recruitment. *International Journal of Selection and Assessment*, 8, 16-21. *
- Stevens, C. K. (1998). Antecedents of interview interactions, interviewers' ratings and applicants' reactions. *Personnel Psychology*, 51, 55-85.
- Strauss, S., Miles, J., & Levesque, L. (2001). The effects of videoconference, telephone, and face-to-face media on interviewer and applicant judgements in employment interviews. *Journal of Management*, 27, 463-382. *
- Taib, M., M. (2008). *The effects of interview structure in interview transcript on applicants' reactions: A laboratory experiment*. Unpublished dissertation. International Islamic University Malaysia (IIUM).
- Taylor, M. S., & Bergmann, T. J. (1987). Organizational recruitment activities and applicants' reactions at different stages of the recruitment process. *Personnel Psychology*, 40, 261-285.
- Turban, D. B., & Dougherty, T. W. (1992). Influences of campus recruiting on applicant attraction to firms. *Academy of Management Journal*, 35, 739-765.