Investigative Decision-Making by Criminal Investigators in Taiwan

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Criminal investigation, which is generally conducted in knowledge-intensive and time-sensitive environments, presents a critical challenge to criminal investigators. The success of a criminal investigation significantly depends on the investigator's ability to generate possible investigative hypotheses and test those using different lines of inquiry. Criminal investigation is conventionally considered a skill, where the investigator's field experiences are crucial to improve the field. A few studies have focused on investigative decision making in Taiwan. This research aims to examine the effects of professional experience and investigative tipping points on the quality of investigative hypotheses and investigative actions conducted by investigators. A quasi-experimental design developed by Fahsing & Ask (2016) was employed, where 32 senior investigators and novice police officers were presented with two semi-fictitious cases. They were asked to report all the relevant investigative hypotheses and necessary investigative actions, which were evaluated against the established gold standard. The results showed that investigators with greater professional experience presented improved investigative actions but not hypotheses. In particular, participants tended to generate criminal hypotheses and ignored noncriminal ones. The investigative tipping point did not have a significant effect on the participants' responses concerning the production of gold-standard hypotheses and lines of inquiry. Hence, it was arrived at the conclusion that investigative decision making actually existed in criminal investigation process, which could not be improved without systematical and continued training. Finally, several suggestions have been proposed in this study for the research and training of investigative thinking in Taiwan.

Keywords: *Criminal investigation, investigative decision making, investigative hypothesis.*

Extended Abstract

Criminal investigation, which is generally conducted in knowledge-intensive and time-sensitive environments, presents a critical challenge to criminal investigators. Traditionally, criminal investigation research in Taiwan has emphasized methods or techniques that can facilitate crime-solving and has ignored investigators' decision-making during the investigation process. Criminal investigation is a goal-oriented task. Psychologically, the investigative process is a mental "game" in which investigators use cognitive procedures to solve problems (Karlsen et al., 2007). When investigators investigate complex cases, they construct various hypotheses from existing information and then examine competing hypotheses based on their investigative actions. Ideally, the hypotheses should include all possible situations, potential offenders, behavior patterns, and criminal motives. However, investigators, like experts in other fields, may be biased by contextual factors.

Fahsing and Ask (2016) compared English and Norwegian investigators' ability to generate investigative hypotheses and actions and their vulnerability to investigative 'tipping-points' (decisions that put

investigators in a mindset focused on verifying the guilt of a suspect) by using a quasi-experimental design featuring two crime scenarios based on real-life missing person cases. The gold standard created by English and senior Norwegian investigators using the Delphi method was adopted to assess the quality of the participants' hypotheses and actions. The results did not indicate any significant effect of the manipulated decision tipping point on the number of generated gold standard hypotheses or actions. Although the Norwegian novices performed better than the English novices, there was no difference between the seniors and novices' performance. In contrast, the English seniors performed significantly better than their novices, Norwegian novices and seniors. Fahsing and Ask (2016) concluded that differences in the investigators' training caused this disparity. Valberg (2016) used the same methodology to test police officers in Iceland, merging and revising an investigative hypothesis into two criminal hypotheses and four non-criminal hypotheses. The results showed that the performance of the Icelandic novices and seniors was similar to that of the English novices, and the performance of the Icelandic seniors was not better than that of their novices.

The present study replicated Fahsing and Ask's (2016) quasi-experimental design to examine Taiwanese investigators' competence in investigative decision-making using a 2×2 mixed factorial design featuring the level of experience and the presence/absence of tipping points.

The following hypotheses were tested in this study: Experienced investigators generate a greater number of relevant investigative hypotheses (H1) and actions (H2) than novice police officers do; fewer hypotheses and investigative actions are generated when a tipping point is present in the case (H3); and experienced investigators are less influenced by the presence of a tipping point than novices are (H4).

Methodology

Participants

Sixty-four participants took part in the study, including 32 senior investigators with more than 10 years of investigative experience and 32 novice police officers with less than 2 years of police experience and no advanced investigation training. All of the senior participants were men; 78.1% of the novice participants were men, and 21.9% were women. The senior participants' average age was 46.19 years, and they had an average of 25.45 years of experience as a police officer and 17.73 years as a detective . The novice participants' average age was 25.38 years, and they had an average tenure of 1.06 years as a police officer.

Research material

The stimulus material comprised the same vignettes as used by Fahsing and Ask (2016) with two semi-fictitious missing-person scenarios that could potentially be construed as homicide cases. The tipping points were manipulated by adding a sentence at the end of the vignette, stating that an arrest had been made.

Procedure

The participants were presented with two vignettes. They were instructed to read one case at a time and then generate as many case hypotheses and actions as possible, without considering any resource limitations or restrictions. They had 30 minutes to work on each case and had a 10-minute break between cases. The quality of the participants' responses was assessed according to Fahsing and Ask's (2016) gold standard and Valberg's (2016) new gold standard list of hypotheses and actions.

Results

Case 1

A young girl had a dispute with her family before she disappeared. The police found the girl's mobile phone in the trash bin at her home and found footwear suspected to be the girl's in a nearby park.

The results were as follows (Table 1):

1. There was no significant difference between the novice and senior groups for the gold standard hypotheses ($F(1, 60) = .002$, $p = .96$) and the new gold standard

hypotheses ($F(1, 60) = .31$, $p = .58$).

2. The senior group suggested more investigative actions than the novice group did ($F(1, 60) = 4.05$, $p = .05$).

3. For both groups, the tipping point had no effect on the gold standard hypotheses ($F(1, 60) = .98$, $p = .33$), the new gold standard hypotheses ($F(1, 60) = .10$, $p = .76$), or the investigative actions ($F(1, 60) = 1.57$, $p = .22$).

Case 2

A woman had a dispute with her husband before she disappeared. The police found the body of an unknown woman, dressed like the missing woman, in a nearby park. They also found a roll of black garbage bags in her husband's car that resembled the one used to hold the unknown woman's body.

The results were as follows (Table 2):

1. There was no significant difference between the novice and senior groups for the gold standard hypotheses ($F(1, 60) = .07$, $p = .79$) and new gold standard hypotheses ($F(1, 60) = .44$, $p = .51$).

2. The senior group suggested more investigative actions than the novice group did ($F(1, 60) = 6.56$, $p = .01$).

3. For both groups, the decision point had no effect on the gold standard hypotheses ($F(1, 60) = .67$, $p = .42$), the new gold standard hypotheses ($F(1, 60) = .10$, $p = .76$), or the investigative actions ($F(1, 60) = .74$, $p = .39$).

Conclusion

Overall Finding

The results revealed that professional experience had no significant effect on the hypotheses generated (i.e., H1 was not supported), but it did have a significant effect on investigative actions (i.e., H2 was supported). The responses of both the senior and novice groups were dominated by criminal hypotheses. For Case 1, only 34.38% of the seniors and 46.88% of the novices generated any non-criminal hypotheses. The novices generated more non-criminal hypotheses than the seniors

Table 1

Proportions of gold standard hypotheses and new gold standard hypotheses generated by experience and tipping point in the case 1

	Gold standard hypotheses								
	No Tipping point			Tipping point			Over all		
	N	M	SD	N	M	SD	N	M	SD
Novices	16	.37	.19	16	.35	.18	32	.36	.23
Seniors	16	.40	.23	16	.35	.22	32	.36	.18
	New gold standard hypotheses								
	No Tipping point			Tipping point			Over all		
	N	M	SD	N	M	SD	N	M	SD
Novices	16	.34	.15	16	.36	.12	32	.35	.14
Seniors	16	.33	.12	16	.33	.17	32	.33	.15
	Investigative actions								
	No Tipping point			Tipping point			Over all		
	N	M	SD	N	M	SD	N	M	SD
Novices	16	.36	.11	16	.30	.10	32	.33	.11
Seniors	16	.38	.11	16	.37	.09	32	.38	.10

Table 2

Proportions of gold standard hypotheses and new gold standard hypotheses generated by experience and tipping point in the case 2

	Gold standard hypotheses								
	No Tipping point			No Tipping point			No Tipping point		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Novices	16	.18	.08	16	.24	.07	32	.21	.08
Seniors	16	.23	.08	16	.20	.10	32	.22	.09
	New gold standard hypotheses								
	No Tipping point			No Tipping point			No Tipping point		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Novices	16	.19	.05	16	.20	.09	32	.20	.07
Seniors	16	.18	.04	16	.19	.05	32	.19	.05
	Investigative actions								
	No Tipping point			No Tipping point			No Tipping point		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Novices	16	.29	.11	16	.35	.08	32	.32	.10
Seniors	16	.40	.13	16	.39	.13	32	.39	.13

did (Figures 1 and 2).

For Case 2, only 9.38% of the seniors and 12.5% of the novices generated non-criminal hypotheses, and the novices suggested more non-criminal hypotheses than the senior group did (Figures 3 and 4). One explanation is that most of the participants presumed that the corpse

Figure 1

Proportion of participants who reported each of the gold-standard investigative hypotheses by experience in the case 1
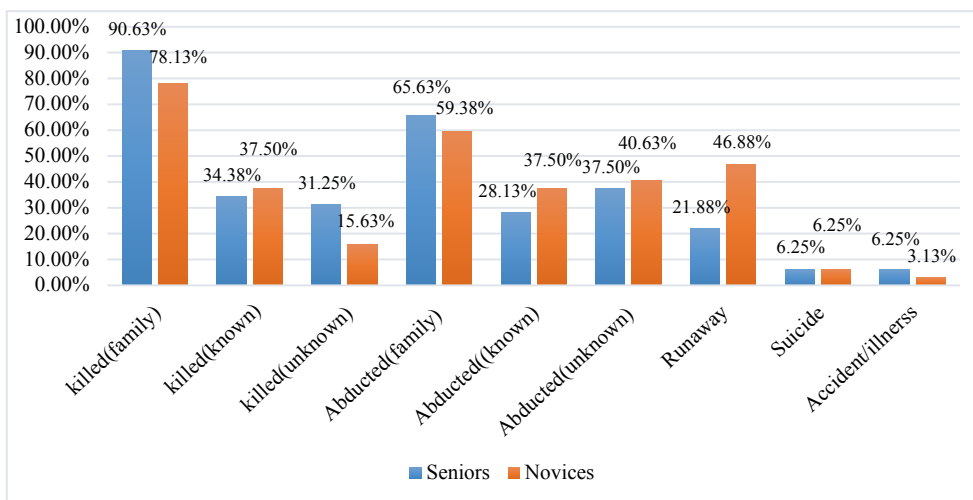
Figure 2

Proportion of participants who reported each of the new gold-standard investigative hypotheses by experience in the case 1
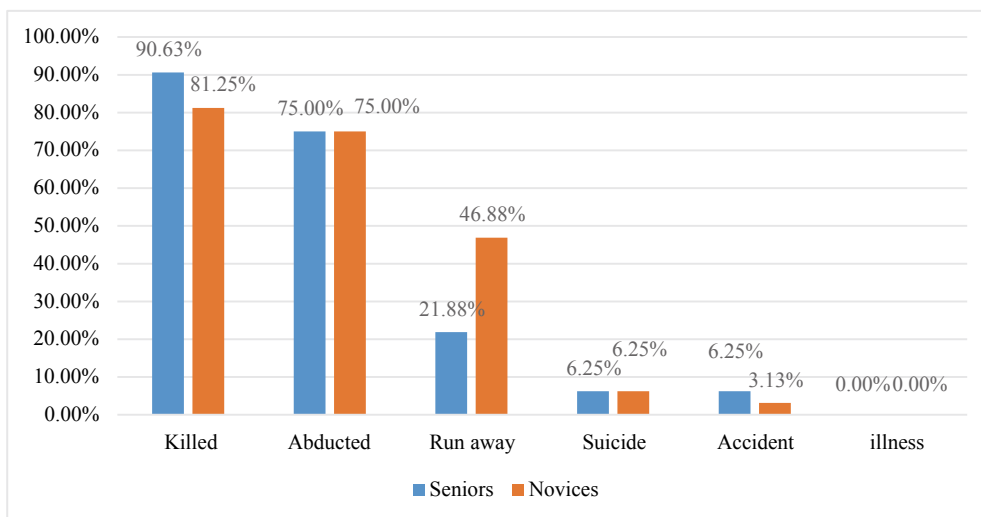

Figure 3

Proportion of participants who reported each of the gold-standard investigative hypotheses by experience in the case 2
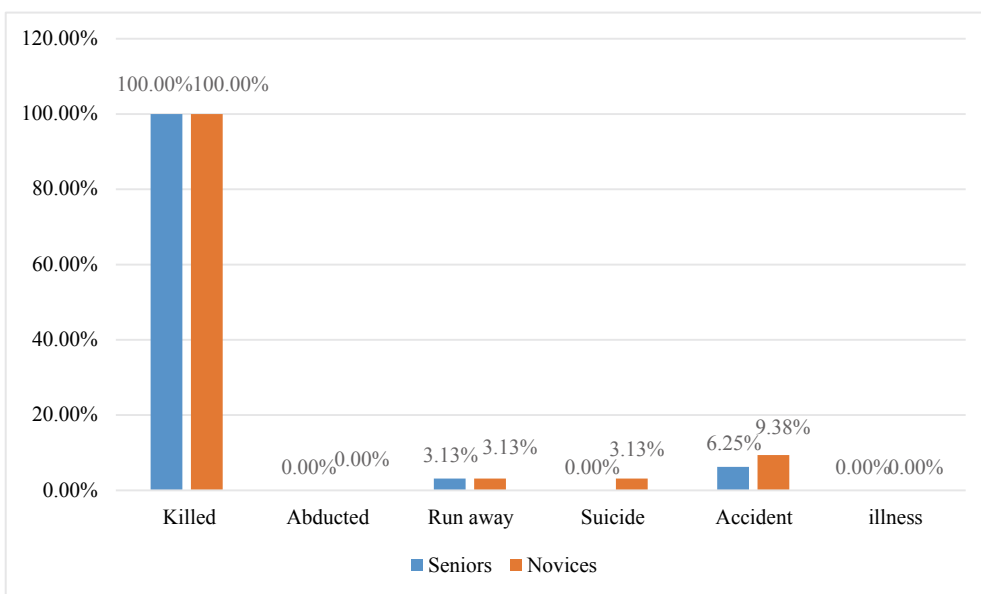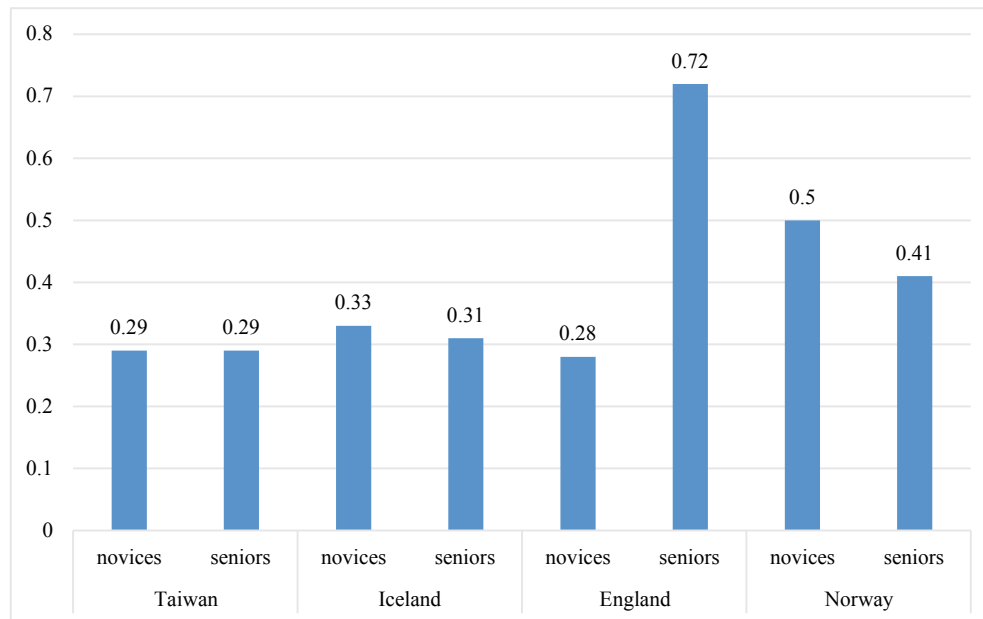
Figure 4

Proportion of participants who reported each of the new gold-standard investigative hypotheses by experience in the case 2

placed in the black plastic bag was the missing person so they judged it as a criminal case and then were biased toward a criminal hypothesis.

There was no difference between the seniors and novices' vulnerability to tipping points when generating hypotheses (i.e., Hypotheses 3 and 4 were not supported).

Comparison of Icelandic, English, Norwegian, and Taiwanese Participants

This study's results were compared with those of previous studies in England(Fahsing & Ask, 2016), Norway, and Iceland (Valberg, 2016). The scores for gold standard hypotheses and investigative actions for English, Norwegian, and Icelandic participants are shown in Table 3. It seems that experience only had a significant influence on the investigative hypotheses of the English participants, but it influenced the investigative actions of participants from all four countries. Only the English seniors performed significantly better than novices in the formulation of investigative hypotheses.

The Taiwanese participants (both novices and seniors) performed slightly better on hypothesis generation than English novices, similar to Icelandic,

and worse than Norwegian and English seniors (Figure 5). On investigative actions, the Taiwanese participants' performance was almost the same as that of English and Icelandic novices, but worse than that of Norwegian and English seniors (Figure 5).

The basic training for police officers in Taiwan is a two-year college program leading to an associate degree. In Norway, it is a three-year college program leading to a Bachelor's degree. In Iceland, the basic training comprises a 12-month course, four of which are on the job training. In England, it comprises a 25-week foundation course, a two-year probation period and comprehensive training as part of the Professionalizing Investigation Programme. Decision-making training courses are only offered in Norway and England. Thus, the results of this study suggest that investigative decision-making competence is improved not through real-life investigating experience but through comprehensive and continued training.

Further Recommendations

This article is the first domestic empirical study on investigative decision-making in Taiwan. The results

Table 3

Proportions of gold standard hypotheses and new gold standard hypotheses generated by experience and tipping point in the case 2

	No tipping point		Tipping point		Overall	
	M	*SD*	*M*	*SD*	*M*	*SD*
Gold Standard Hypotheses						
Taiwan						
Novices	0.28	0.17	0.30	0.14	0.29	0.16
Seniors	0.31	0.19	0.26	0.18	0.29	0.18
Iceland						
Novices	0.3	0.14	0.38	0.19	0.33	0.12
Seniors	0.32	0.13	0.31	0.14	0.31	0.1
England						
Novices	0.3	0.19	0.28	0.13	0.28	0.12
Seniors	0.69	0.25	0.78	0.25	0.72	0.18
Norway						
Novices	0.52	0.23	0.6	0.14	0.5	0.23
Seniors	0.51	0.24	0.64	0.13	0.41	0.21
Gold Standard Investigative actions						
Taiwan						
Novices	0.32	0.11	0.32	0.09	0.32	0.10
Seniors	0.39	0.12	0.38	0.11	0.39	0.11
Iceland						
Novices	0.43	0.11	0.41	0.11	0.42	0.09
Seniors	0.49	0.13	0.46	0.12	0.47	0.11
England						
Novices	0.38	0.11	0.4	0.13	0.39	0.11
Seniors	0.73	0.14	0.73	0.13	0.73	0.1
Norway						
Novices	0.62	0.15	0.6	0.14	0.6	0.14
Seniors	0.62	0.13	0.64	0.13	0.64	0.13

Source for England and Norway: Fahsing and Ask, 2016; for Iceland: Valberg, 2016.

Figure 5

Proportion of participants who reported each of the new gold-standard investigative hypotheses by experience and countries
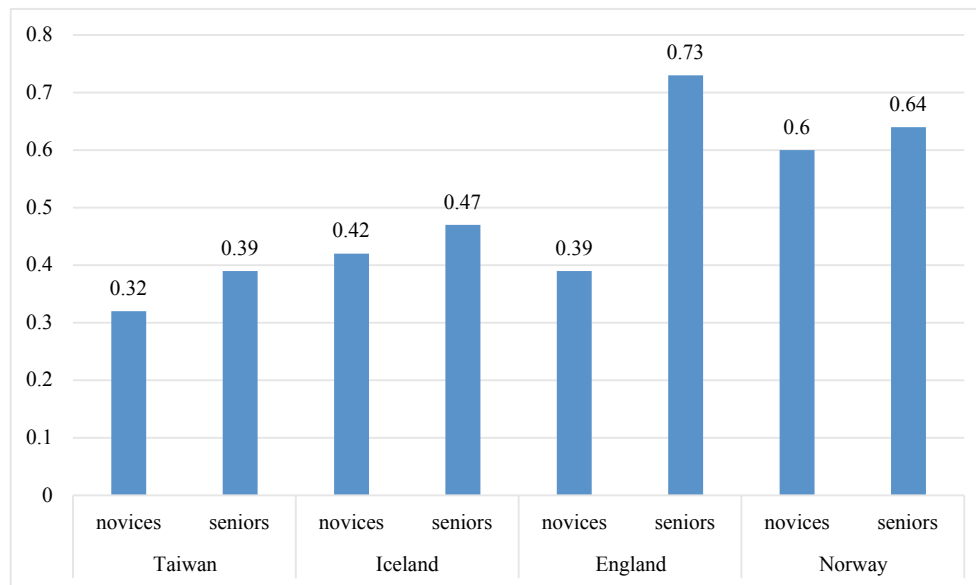
Source for England and Norway: Fahsing and Ask, 2016; for Iceland: Valberg, 2016.

confirm that investigative decision-making exists in the investigation process and that professional experience does not improve investigators' investigative decisions unless proper training programs are provided. Based on these findings, it is recommended that further empirical research be conducted using vignettes adapted from Taiwanese cases and that investigative psychology courses be included in basic police training. A systematic and comprehensive in-service training program should also be developed for Taiwan.