

Where in the World? Exploring the Factors Driving Place Location Knowledge among Secondary level Students in Dublin, Ireland

Paul M. Torrens

ABSTRACT

The extant literature on place location learning resolves in varying degrees that place location knowledge (PLK) is deficient in the United States and abroad. This is particularly true for younger school-attending age groups. This study has three main aims: to investigate the validity of that claim in regard to secondary-level students in Dublin by testing their PLK; to assess what characteristics of tested place locations render some sites more visible in students' eyes than others; and to investigate statistically what traits of the respondents shape their PLK. The implications of these findings on geographic education and future research are also discussed.

Key Words: place location knowledge, geography, education, mental maps, spatial cognition

INTRODUCTION

Prompted by levels of deficiency in the place location knowledge (PLK) of young Americans, one author has asserted that the youth of America "are globally speaking, blind, deaf, and dumb" (Drake, 1987, p.300). Irish studies indicate that students in Ireland share the place location learning difficulties of their American cousins and those abroad. PLK has, however, been addressed only in a piecemeal fashion in Ireland. The aims of this study are threefold: to examine the PLK of Dublin's school-attending youth in greater detail; to assess what characteristics of the tested place locations render some more visible than others; and to quantitatively investigate what traits of the respondents shape their PLK. The paper opens with an examination of the value of PLK. This is followed by a review of comparable works in Ireland, the United States, and abroad. The research design is then described and is succeeded by a description of the research findings and how they relate to other studies. The paper concludes with a discussion of the implications of the research findings for geographic education and makes suggestions as to how educators might tackle the issue of PLK deficiency in their classrooms.

THE VALUE OF PLACE LOCATION KNOWLEDGE

Should PLK deficiencies be a concern? Is an adequate PLK an important acquisition? Certainly, it is necessary for the geographer. It provides the foundation within which the discipline is rooted. The geographer must have a basic understanding of the world around him/her before he/she can comprehend the processes at work in that environment. On a much more practical level, PLK is helpful for many commonplace functions such as understanding weather reports, comprehending international news, deciding where to live, and for the enjoyment of travel (Drake 1987). Drake believes that PLK is essential to an individual's "global citizenship" (p.143). Indeed, we have a moral obligation to improve our place location skills as citizens of a world in which economies and politics are intricately bound up with those of other nations. Gould and White (1986) have even suggested that place location ignorance could, in fact, lead to racial prejudice and "crippling snobbery" (p. 28).

PLACE LOCATION KNOWLEDGE RESEARCH

As befitting such an important and intrinsically spatial phenomenon, PLK has received much academic attention from geographers as well as researchers in other disciplines. PLK research may be divided into three broad categories: geographic literacy, mental maps, and studies focusing on PLK alone. Geographic literacy studies deal with many facets of geographic knowledge, but not specifically with PLK (Donovan 1992/1993, Francek et al. 1993, Gallup 1988, Gillmor 1980, 1994, Saveland 1980). PLK as represented in mental map research generally deals with knowledge as perceived through drawn sketch maps (Chiodo 1993, Gould and White 1986, Kong et al. 1994, Saarinen 1988, Thomas and Willinsky 1999). PLK-specific tests, on the other hand, examine location

Paul M. Torrens is a Ph.D. student at the Centre for Advanced Spatial Analysis, University College, London, UK. This work was carried out while he was a student in the Department of Geography, Trinity College, Dublin.

knowledge by administering blank maps and requiring respondents to identify features labeled upon them (Beatty and Tröster 1987, Cross 1987, King and Mc Grath 1987/1988, Helgren 1983, Porter 1987, Wise 1975). The merits of each of these approaches will now be discussed, followed by a review of PLK research in Ireland.

Geographic literacy studies are not generally intended as tests of PLK. Indeed, geographic literacy research does not always give PLK the attention it deserves. Alternatively, cognitive studies using mental maps as a testing technique have addressed PLK quite thoroughly. In certain instances, mental map studies have many advantages over PLK-specific testing techniques. Mental map tests are relatively easy to administer across language and cultural boundaries (Kong et al. 1994). They permit the study of perceived continent size and the centering of global mental maps (Monastersky 1992). Mental maps may provide a more complete representation of the remembered geography of respondents, since the inclusion of one particular feature can promote cognitive associations with adjacent features or with features that share related functions (Buttenfield 1986). Mental maps have their shortcomings as a test of PLK, however. The researcher can be left to speculate about the cognitive determinants that underlie individuals' maps (Kong et al. 1994). Sketch mapping is too unconstrained and can produce highly irregular cognitive maps. It does not lend itself very well to quantitative analysis; researchers may score sketch maps differently, hindering the comparison of results across studies. Buttenfield (1986) has remarked of mental maps that "variations in scale, orientation, and even content are often so extreme as to prohibit any meaningful measurement of relative distance and direction much less to allow comparisons between groups of sketched maps" (p. 239).

Literature published on the subject of PLK has, for the most part, examined the United States. The extant literature universally concludes, in varying degrees, that American PLK is strongly lacking (particularly for younger age groups). However, there has been comparatively little work done to gauge Irish PLK. The World Based Place Vocabulary Test (WBPVT) was applied to Ireland in 1979 (Gillmor 1980, Saveland 1980) and did examine PLK. That study, however, was performed two decades ago and its conclusions may no longer hold, particularly in light of the changes that have taken place in Irish secondary school syllabi in the intervening years. More recently, Donovan (1992/1993) investigated PLK among secondary-level pupils (as well as adults) in Ireland. The goal of Donovan's test was to assess geographic literacy; PLK was not its principal focus. It contained only 11 place location tasks, and his analysis framed PLK solely in the context of geographic literacy. Moreover, the examined student group was comprised solely of geographers. The study also limited its attentions to schools and adults in a single district of the city and did not test students on their PLK of Ireland. In investigating the PLK of Irish university students, King and McGrath (1987/1988) surveyed a handful of respondents in

one geography class and tested the PLK of Africa alone. The InterGeo Project (Gillmor 1994) included secondary level schools in its sample population, but treated PLK as a small facet of geographic literacy, testing only six place locations.

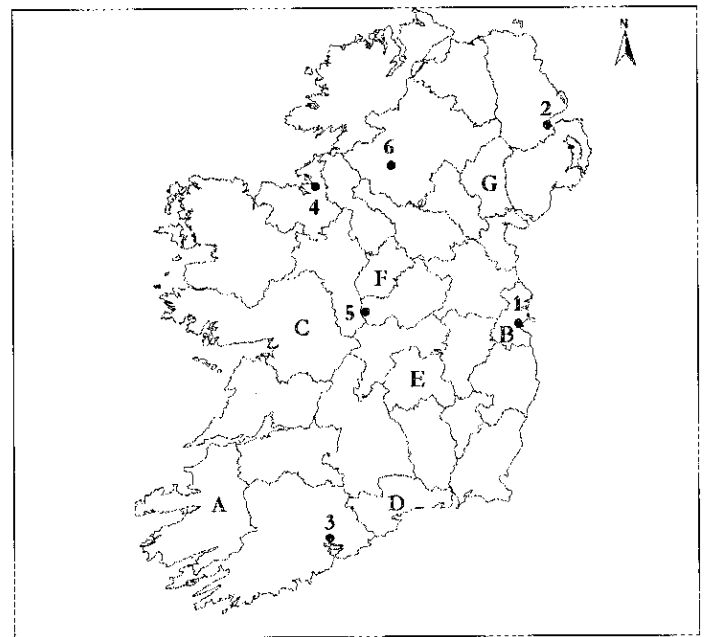
A shortcoming of PLK research in general and in Ireland in particular is that the determinants of PLK have largely gone without investigation in a systematic and empirical manner. This study aims to re-address an apparent imbalance in Irish cognitive research. It focuses upon PLK alone, not as a subset of geographic literacy or as a by-product of mental maps, and it statistically investigates the factors that may shape the PLK of Irish students.

Research Methods

Test Design

Close attention was paid to previous studies while formulating a methodological design so that the results of this research could be compared to equivalent works both in Ireland and abroad. PLK was tested using blank maps that required respondents to identify labeled locations. In conjunction with this testing, respondents were asked to fill out a questionnaire soliciting personal and educational information. In this way data were collected that could be used in a quantitative model to link characteristics of respondents to their tested PLK.

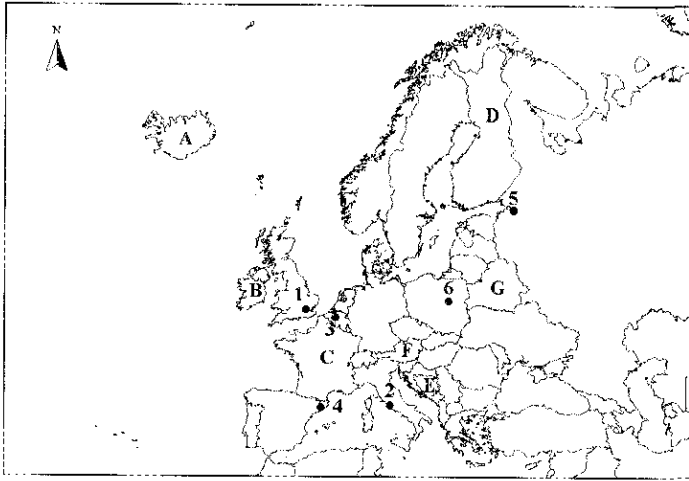
A map test was used to determine respondents' knowledge. Students' PLK was gauged by their ability to



This is a map of Ireland. In the spaces provided, please write down the counties at locations A to G on the map, and the major towns or cities at locations 1 to 6 on the map. The first question has been completed for you as an example:

A. Kerry			
B.	E.	1.	4.
C.	F.	2.	5.
D.	G.	3.	6.

Figure 1. Ireland Map Test



This is a map of Europe. In the spaces provided, please write down the countries that correspond to locations A to G on the map, and the cities that correspond to locations 1 to 6 on the map. The first question has been completed for you as an example.

A. Iceland			
B.	E.	1.	4.
C.	F.	2.	5.
D.	G.	3.	6.

Figure 2: Europe Map Test

identify the political boundaries of countries, counties, and the locations of cities (or towns) on blank maps. A selection of place locations was labeled and respondents were asked to identify them (Figures 1 to 3). Respondents' PLK was tested on three scales--national, European, and global--thereby facilitating a broad examination of students' knowledge. Thirty-seven place locations across the three scales were tested in all. The 37 locations provided an adequate volume of test material to investigate the validity of the research assumptions. PLK of country and county locations was measured in terms of

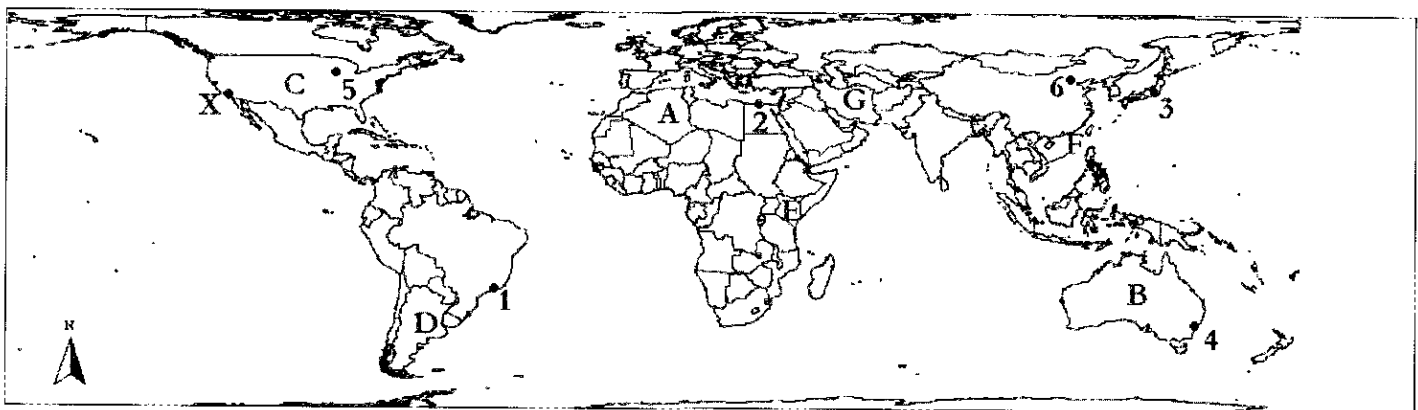
absolute accuracy. However, in recognition of cartographic scaling effects that might influence respondents' identifications, there was some flexibility in the grading of city and town locations; for example, identifying Chicago as Milwaukee on a map of the world would be coded as a correct response. A longitude and latitude question required students to roughly identify the latitudinal and longitudinal position of a mapped site. Tested place locations were selected to include a variety of site characteristics (Table 1). There was, in many instances, a degree of overlap in the representation of characteristics in each test. Map locations were chosen with consideration of the following attributes:

Media Coverage—Questions were formulated to include places that had featured prominently in the media at the time of study, with the recognition that students might more readily identify sites with a relatively high media profile. In order to select appropriate locations, newspaper, radio, and television reports were reviewed in the months preceding the study.

Shape—Respondents were also queried regarding the location of an island nation as well as that of non-island sites. In this way, PLK differences in regard to island and non-island territories were catered to.

Size—Questions were asked concerning sites with large and small areas and populations because of concerns that relatively larger sites would be more easily recognized than comparatively smaller places. Care was taken in the selection of the projection used to design the maps so as to minimize area distortion.

Position—Respondents were asked to identify locations on the periphery of landmasses as well as interior sites. In this way, provisions were made for variations between the visibility of edge sites and those inland.



This is a map of the world. In the spaces provided, please write down the countries that correspond to locations A to G on the map, and the cities that correspond to locations 1 to 6 on the map and the general latitude and longitude of location X. The first question has been completed for you as an example.

A. Algeria	E.		
B.	F.	1.	4.
C.	G.	2.	5.
D.	X.	3.	6.

Figure 3: World Map Test

Table 1. Place Location Characteristics.

Media Coverage	<i>High</i>	<i>Low</i>
Ireland Map	Belfast, County Waterford	Sligo, County Laois
Europe Map	Bosnia-Herzegovina, Brussels	Finland, Warsaw
World Map	Iran, Sydney	Kenya, Cairo
Shape	<i>Island</i>	<i>Non-Island</i>
Europe Map	Republic of Ireland	Austria
World Map	Australia	Argentina
Size	<i>Large</i>	<i>Small</i>
Ireland Map	Dublin, County Galway	Athlone, County Longford
Europe Map	London, France	Warsaw, Austria
World Map	Tokyo, Australia	San Diego, Vietnam
Position	<i>Edge</i>	<i>Inland</i>
Ireland Map	Cork, County Waterford	Omagh, County Longford
Europe Map	Rome, France	Warsaw, Belarus
World Map	Rio de Janeiro, Argentina	Beijing
Geopolitical Stability	<i>Stable</i>	<i>Dynamic</i>
Europe Map	Barcelona, Finland	St. Petersburg, Bosnia-Herzegovina
Distance	<i>Far from Dublin</i>	<i>Near to Dublin</i>
Ireland Map	Omagh, County Armagh	Dublin, County Dublin
Europe Map	St. Petersburg, Finland	Republic of Ireland, London
World Map	Sydney, Argentina	
EU Membership	<i>Member</i>	<i>Non-Member</i>
Europe Map	Brussels, France	St. Petersburg, Finland
Stage of Development	<i>More Developed</i>	<i>Less Developed</i>
Europe Map	France	Belarus
World Map	United States	Kenya
Historical Significance	<i>More Significant</i>	<i>Less Significant</i>
Ireland Map	Belfast	Sligo
Europe Map	Rome, Austria	Barcelona, Finland
World Map	Iran, Argentina	Kenya, Australia

Geopolitical Stability—The author was concerned that areas exhibiting a dynamic geography would be more easily recognized than those sites whose geography was comparatively more stable. In order to make provisions for this, locations that had experienced recent geopolitical change (such as a shift in the position of their international borders) were tested alongside more steadfast sites. News headlines were reviewed and countries with dynamic political geographies were identified for testing.

Distance—Locations of relative distance from Ireland were examined alongside more proximal sites so that variations in PLK as a result of distance from Ireland could be accommodated in the test.

European Union Membership—On the European map, test questions were posed relating to sites within and outside the European Union (EU). In this way, test sites were not biased toward EU locations.

Stage of Development—It was acknowledged that locations from more developed countries could be more readily noticed than those in less developed areas. For this reason, places from both categories were selected as test locations.

Historical Significance—Certain locations may have visibility advantages because of their historical importance. Sites identified as being centrally involved in major historical conflicts were therefore tested alongside locations that were comparatively less involved.

Each map test started with relatively elementary questions to generate confidence among respondents. The relative ease of questions was based on the results of a pilot test. The questions got progressively more difficult as the examination advanced. Sample answers were provided to serve as examples and to indicate the procedure to be followed when responding to the questions.

To investigate what individual and environmental factors might influence respondents' PLK, a questionnaire survey was devised and administered along with the map tests. The combined use of map tests and questionnaire surveys is a testing strategy that has been successfully employed by a number of authors (Donovan, 1992/1993, Gillmor 1980, 1994, Saveland 1980). The technique enables statistical inferences to be drawn between test results and variables in an administered questionnaire survey, as well as comparisons to be made with equivalent research. Using a series of brief questions, the survey collected information about the respondents' personal characteristics (gender, travel experience, age, school fee payment [a substitute for socioeconomic status], nationality, location); their educational background (performance in national geography exams, level of geography and history education, school gender mix); and their exposure to media (newspaper reading, radio listening, general television viewing and specific television viewing of relatively high geographic content).

Testing Procedures

A random sample of secondary schools from a variety of socioeconomic backgrounds and geographic locations in Dublin was tested in November 1995. It was expected that these schools would be representative of Dublin's secondary level school population as a whole. The tests and questionnaire examined just less than 400 students. The sample was selected carefully; schools were chosen to provide as broad a mix of respondents as was feasible. The study was conducted in individual classrooms at each visited school. Class sizes varied from 15 to 35 students and tested students' ages ranged from 15 to 16 and from 17 to 18.

Findings

The Visibility of Tested Place Locations

Because of differing methodologies, place location visibility—the ease with which sites are identified—could not be systematically compared with previous works. However, a reasoned examination of the results suggested that they closely resemble those of other studies in the United States, Ireland, and abroad. The majority of students answered only a few questions correctly. The average score was 15 out of a possible 37 points. Almost three quarters of the students could not identify Rio de Janeiro, one third of respondents could not accurately pinpoint the United States on a map of the world, 13.1 percent were unaware of London's true location, and 12.2

Table 2. Location Visibility Rankings

Rank	Location	% Correct Responses
1	Republic of Ireland	99.5
2	County Dublin	97.9
3	France	95.5
4	Australia	94.2
5	Dublin	93.5
6	London	86.9
7	County Waterford	83.5
8	Cork	82.2
9	Rome	80.9
10	County Galway	78.5
11	Belfast	67.8
12	United States	66.0
13	Finland	52.1
14	Sydney	51.6
15	Sligo	51.3
16	Brussels	40.6
17	Argentina	40.1
18	Barcelona	35.9
19	Tokyo	32.7
20	Cairo	31.2
21	County Armagh	30.6
22	Austria	30.4
23	County Laois	27.7
24	Athlone	27.5
25	Rio de Janeiro	26.7
26	County Longford	25.4
27	Warsaw	20.9
28	Beijing	18.6
29	Bosnia-Herzegovina	18.3
30	Chicago	17.3
31	Iran	14.9
32	Vietnam	14.1
33	Kenya	11.0
34	Omagh	7.9
35	St. Petersburg	7.9
36	San Diego*	4.2
37	Belarus	2.9

(*Latitude and longitude of location tested only)

percent missed Belfast on a map of Ireland (Table 2). Respondents performed best on average on the place location of Irish counties, followed by Irish towns and cities, European countries, European cities, world countries, and world cities (Figure 4). Respondents also demonstrated an apparent lack of understanding when confronted with a relatively simple (and very liberally graded) question about latitude and longitude (4.2 percent correct).

The diversity in the identification of individual

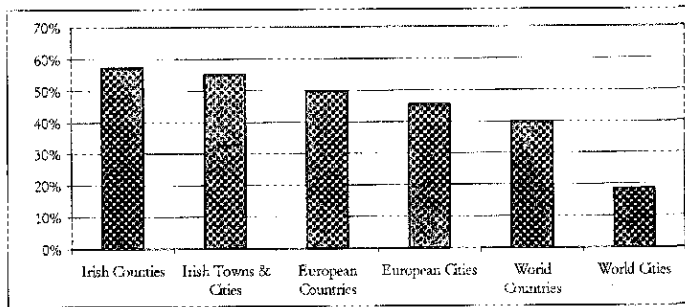


Figure 4. Map Test Summary Results (% Correct Response)

locations was considered in terms of the specific site characteristics afforded those places. The places most readily identified included those close to the study site, on the edge of a landmass, in the developed world, with a large area, with a stable political geography, and in an island setting. The EU membership, media profile, and historical significance of tested place locations played only minor roles in their apparent visibility.

Gillmor (1994) found Irish students' geographic illiteracy to be most pronounced in terms of home and its surroundings and the most visible locations in this study tended to be those close to Dublin. As Saarinen (1973), Gould and White (1986), and King and McGrath (1987/1988) discovered, there was apparent distance decay in students' PLK. It was also found that knowledge of more developed nations was generally better than that of less developed areas. King and McGrath (1987/1988), in examining university students' PLK of Africa, found that places were better identified on the edge of landmasses. The results of this study would appear to support these findings. Amongst their respondents, Porter (1987), Saarinen (1973), Kong et al. (1994), and Thomas and Willinsky (1999) found that PLK was generally better for large areas than comparatively smaller locations. The students examined in this study displayed similar characteristics in their PLK. In their study of high school and university students, Saarinen (1973) and Kong et al. (1994) identified island locations as being highly visible. This research also found that respondents generally placed island locations with better success than non-island sites. Furthermore, students better identified places with a stable political geography than they did those without. In contrast to the findings of Saarinen (1973), King and McGrath (1987/1988), and Kong et al. (1994), the media profile of tested place locations did not play a role in PLK visibility in the context of this study. King and McGrath (1987/1988) discovered that Irish university students better placed locations of historical significance. This was not true for the secondary level students tested by this research. Interestingly, EU membership also appeared to play a relatively minor role in site visibility.

Characteristics of Respondents That Influenced PLK

Each map test and questionnaire was scored and coded for analysis. A multivariate linear regression model was specified for PLK and the individual traits of respondents

that might influence this knowledge. While the characteristics of the actual map locations that rendered some place locations more visible than others could only be inferred from the results of the test, the regression model revealed statistical significance between variables regarding respondents' characteristics, educational background, and media exposure (gleaned from the questionnaire) and PLK as indicated by performance on the tests, while controlling for possible confounds among the predictors.

The model successfully accounted for 40 percent of the variation in PLK results—a very agreeable result given the comparatively unpredictable nature of the phenomenon under investigation. (Explanations of each model variable and its associated significance values are included in Table 3.)

Among personal influences, gender and local and European travel were significant. Geography grades were significant as an educational influence and general- and geography-specific television viewing were significant media influences. Age, world travel, socioeconomic background, location, nationality, level of geography and history study, school gender composition, newspaper reading, and radio listening were not significant determinants of PLK.

Personal Influences

Gender—With regard to personal influences, one of the more interesting findings of the study was that gender was significantly related to test performance. On average, males performed better than did females (Figure 5). This gender bias echoes the findings of a number of authors (Beatty and Tröster 1987, Chiodo 1993, Cross 1987, Donovan 1992/1993, Francek et al. 1993, Gallup Organization 1988, Gillmor 1980, 1994, Saveland 1980, Self and Gollodge 1994). The Gallup Organization (1988) found that gender disappeared as a factor influencing geographic literacy once other variables were held constant. However, in keeping with Beatty and Tröster's (1987) findings regarding

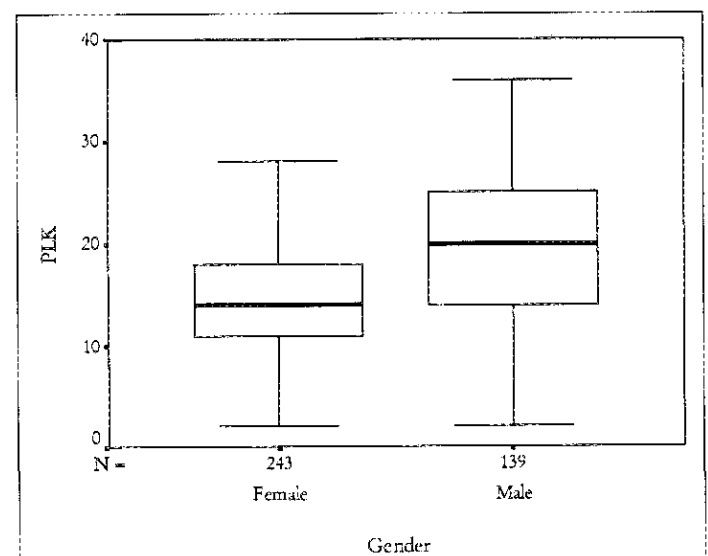


Figure 5. PLK and Gender

Table 3. Regression Model Parameters

Variable	Description	β -value	Standard	t-value	Significance ¹
PLK	Place location knowledge	–	–	–	–
Intercept	–	–1.9824	2.3825	–0.8321	0.4059
GEN	Gender (0: female, 1: male)	4.3582	0.6180	7.052	0.0000*
NTY	Nationality (0: Irish, 1: foreign)	1.3199	1.2673	1.0415	0.2983
YR	Year of study (0: fourth year, 1: sixth year)	0.4611	1.2625	0.3652	0.7152
FEE	School fee-payment (0: not fee-paying, 1: fee paying)	–1.3919	1.3315	–1.0453	0.2966
LOC	Location (0: south Dublin, 1:north Dublin ²)	–0.8765	0.6511	–1.3461	0.1791
LTR	Local travel (0: have not traveled locally, 1: have traveled)	–9.05	2.1927	4.1274	0.0000*
ETR	European travel (0: have not traveled to Europe, 1: have traveled)	1.3053	0.5993	2.1781	0.03*
WTR	World travel (0: have not traveled elsewhere in the world, 1: have traveled)	(0.2676	0.5878	–0.4553	0.6492
GRD	junior Cert. Geography grade ³) (1: E or less, 2:D, 3:C, 4:B, 5:A)	2.071	0.2836	7.302	0.0000*
GEO	Level of geography study (0: fourth year, 1: sixth year)	1.6049	1.2677	1.266	0.2063
HIS	Level of history study (0: fourth year, 1: sixth year)	–1.1129	0.9996	–1.1134	0.2663
TYP	School gender mix (0: single-sex, 1: co-educational)	–0.4574	0.9522	–0.4804	0.6312
TV	Level of general television viewing (0: >10 hours/week, 1: <10 hours/week)	1.3285	0.5515	2.4087	0.0165*
GTV	Level of geography related television viewing (0: watch sometimes or everyday, 1: never watch)	–3.0341	0.6239	–4.8632	0.0000*
NWS	Level of newspaper reading (0: read sometimes or everyday, 1: never read)	0.3589	0.7048	0.5092	0.6109
RAD	Level of radio listening (0: listen sometimes or everyday, 1: never listen)	0.1523	0.8171	0.1864	0.8522

Multiple R-squared value: 0.3963; F-statistic: 14.97 on 16 and 365 degrees of freedom, p-value is 0; residual standard error: 5.141 on 365 degrees of freedom.

¹Pr (>|t|); * denotes significance at $\alpha = 0.05$.

²The "north" category also includes a single school sampled in western Dublin.

³Junior Certificate geography grade (or expected grade) was treated as a continuous variable because the range of scales between grades are equivalent and the variable exhibited a linear relationship with PLK.

map location tasks, the author found gender biases to be significant for PLK in this study even after controlling for potentially confounding influences such as school gender mix. Beatty and Tröster's (1987) experiments found PLK differences to be only minor among American college students, though statistically significant. Among the students examined in this study, however, gender variances in PLK were relatively large in magnitude.

Gender biases in spatial ability (of which PLK is but a small subset) have been attributed to a wide variety of factors and the issue has attracted a great deal of attention.

The results regarding spatial ability are mixed. Gender biases favoring both males and females manifest themselves for certain spatial tasks, but not for others. Self et al. (1992) have argued that "future researchers, therefore, should focus specifically on those subsets of tasks that may provide clear evidence of different ability, and present experimental results to confirm or deny such hypotheses" (p. 326). The author has attempted to meet this challenge in the research presented here. The findings of recent studies regarding gender differences in spatial ability can be divided into three broad categories: deficiency theory,

difference theory, and inefficiency theory (Self et al. 1992). Deficiency theories explain gender biases in terms of biological factors such as brain lateralization or hormonal differences between the sexes. Alternatively, difference theory attributes gender differences to sociocultural forces that have an impact upon experiences, expectations, and training. Quite similar to difference theories, inefficiency theories argue that sociocultural influences and stereotypes affect the incentive for spatial learning differently between the sexes. While other studies have offered biological arguments for gender variations in spatial ability—some of which could well extend by inference to PLK—the author is unconvinced of the applicability of such explanations. Spatial ability, particularly PLK, is more than a biological attribute; it is a skill that is firmly rooted in perceptual notions of one's surroundings—the very things that have the potential to be affected by sociocultural stereotypes and influences. However, uncovering the link between sociocultural forces and spatial ability is a complex task—an unfortunate reality that may cause many researchers to shy away from pursuing such questions.

The findings of this study and others offer compelling evidence to support the hypothesis that gender biases exist in PLK. The reasons behind these differences in PLK have been addressed by only a handful of authors, however. Nevertheless, their findings may help inform the results of this study. The author was limited in the range of age groups that he could test in this work. However, juxtaposing the findings of this study with similar experiments suggests that gender variations may well be a function of age. Gender biases appear to be present at younger ages but dissipate towards adulthood, at which point they no longer manifest themselves. Beatty and Tröster's (1987) conclusions that gender differences in PLK were statistically significant for PLK but marginal in magnitude at the university level may lend weight to this assumption. Francek et al. (1993) found gender differences in PLK to be most distinctive in the junior high school students that they examined, but noticed that those biases were less evident in high school and were practically absent at the university level. While gender variations in PLK appear to manifest themselves more readily amongst school-attending age groups than amongst adults, further research is needed to confirm this hypothesis and to factually uncover an explanation.

Travel—It was hypothesized that a relationship would be uncovered between test performance and travel experience. Pupils who had traveled extensively were expected to perform better on average than respondents who had traveled less. Local travel (within Ireland or the United Kingdom) and European travel (outside of Ireland and the United Kingdom) were statistically significant for PLK; travel elsewhere in the world was not (Figures 6 and 7). Gould and White (1986) found that an individual's PLK, as displayed through mental maps, grew with increasing

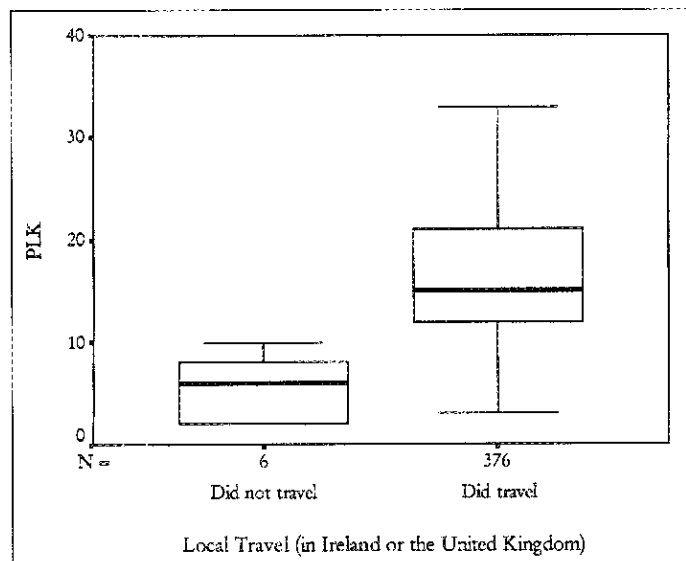


Figure 6. PLK and Local Travel.

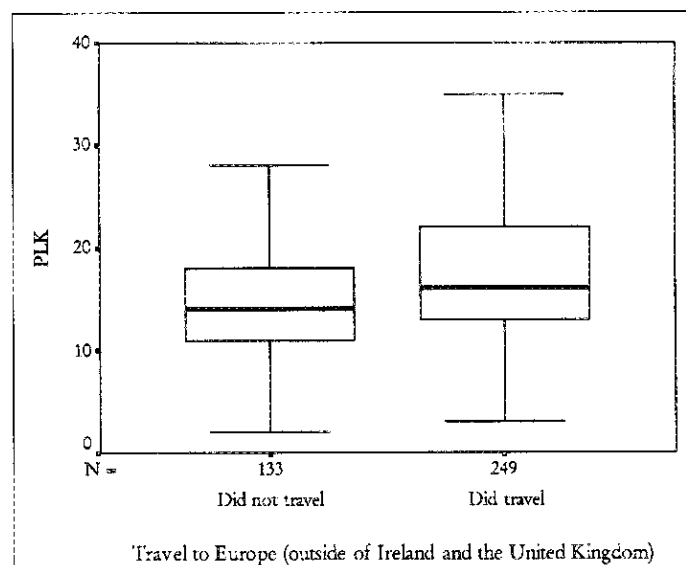


Figure 7. PLK and European travel.

personal travel. Equally, the Gallup Organization (1988) found that travel played a significant role in the geographic literacy of American adults. Kong et al. (1994) found that secondary level school students in Singapore identified popular travel destinations most readily on their mental maps. Beatty and Tröster (1987) hypothesized that "people who have traveled extensively would be directly exposed to salient geographical features...and memory for those experiences should aid the localization of specific places on map tests. Furthermore, travelers would be more likely to study maps of unfamiliar places prior to their visits" (pp. 587-588). Perhaps the reasoning behind the significance of local and European travel in this study, in contrast with travel to destinations elsewhere in the world, is due to the relative frequency with which visits to nearby destinations are likely to occur. Irish families are more likely to travel within the country or to other European

destinations more frequently than to locations elsewhere in the world. Far-flung trips—more likely to be once-off ventures—would therefore be less likely to have a lasting influence on students' PLK than comparatively more frequent visits to closer destinations.

Year of study (age)—It was anticipated that the research would find a relationship between year of study (an indicator of students' age) and PLK. Students in their fourth year of secondary level education, preparing for their Junior Certificate (generally aged 15 to 16), were examined alongside students in their sixth year, studying towards their Leaving Certificate (aged 17 to 18). The two groups were not significantly distinguishable in terms of their PLK, however. This finding differs from those of other studies. The Gallup Organization (1988) and Donovan (1992/1993) found age to be related to general geographic literacy among the adults and secondary level school children that they surveyed. However, while neither concerned itself with questions of PLK specifically, both of those studies tested a much wider range of ages.

School fee-payment (socioeconomic background)—School privacy policies restricted questions relating to social class and income in the questionnaire. In lieu of a socioeconomic indicator, both private fee-paying and non-fee-paying public schools were sampled in the study and fee-payment was used as a proxy for socioeconomic information. Informal conversations with staff in the schools visited revealed that non-fee-paying schools generally enrolled students from a diversity of socioeconomic groups. Fee-paying schools, on the other hand, catered almost exclusively to students from more privileged backgrounds. This is generally the circumstance across Ireland. It was hypothesized that school fee type would be significant for PLK. This was not the case, however. Money, it would appear, cannot buy you a better PLK education in Dublin. Donovan (1992/1993) found that social class was significantly related to geographic literacy, but that this influence was indirect: it was transmitted through the quality of education afforded respondents from different socioeconomic groups. His study, however, examined both adults and schoolchildren and his findings did not distinguish between the two. While socioeconomics may shape adult PLK, it does not appear to be influential at the secondary school level.

Location—It was expected that school location would be statistically significant for PLK. While areas north of Dublin's River Liffey are comparatively less wealthy than those in the south, the author sampled schools representing a variety of socioeconomic backgrounds in each area. Additionally, the effect of socioeconomics on location was controlled for in the model specification. It was felt that any significance in the relationship between PLK and location could be attributed to location-specific characteristics such as proximity to airports. However, no

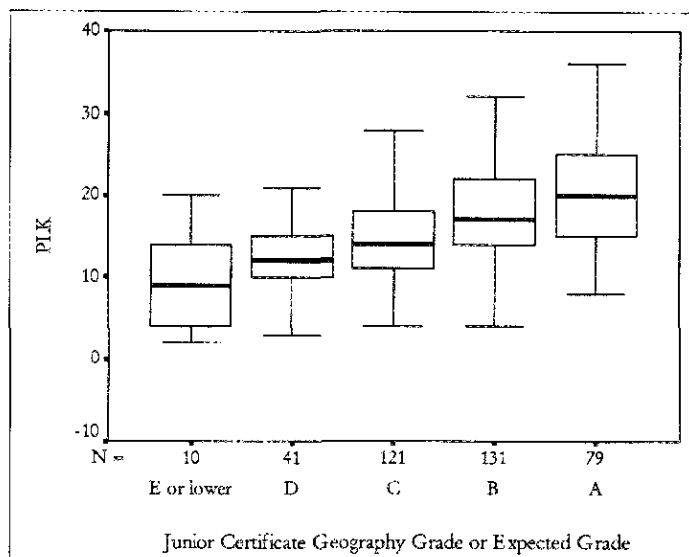


Figure 8. PLK and Junior Certificate Geography Grade or Expected Grade.

significant link was detected.

Nationality—Initial expectations anticipated a relationship between nationality and PLK. It was hypothesized that PLK might differ between Irish nationals and those who claimed foreign nationality. No statistical association was found, however.

Educational Influences

Junior Certificate grades—Surprisingly few school-based variables were found to be significant for PLK. The Junior Certificate examination was found to be statistically significant: students who achieved or expected high grades on the geography section of the mandatory national exam performed better on all of the map tests. Conversely, students who received or anticipated low grades on the exam scored comparatively worse (Figure 8). This finding suggests that PLK is a good indicator of a student's ability to perform well on standardized geography exams. The results also support the contentions of authors who feel that PLK provides students with a foundation upon which a good geographic knowledge can be constructed (Fahy 1989/1990, Woodring 1984).

Level of geography study and level of history study—PLK was not significant for respondents' levels of geography study, nor was it significant for level of history education. It had been hypothesized that history education would be related to PLK because of its emphasis on location and space, as well as the number of maps and geographic illustrations commonly contained in history textbooks. However, in keeping with the observation that the historical profile of sites examined in the map tests appeared to play no role in the visibility of tested place locations, the level of history study undertaken by students was not statistically significant for PLK, even when the

possibility of external influences such as year of study were controlled for. Interestingly, level of geography study was also revealed as insignificant. Controlling for age, this result suggests that higher-level geography syllabi offer no improvement in PLK education over courses directed at younger age groups.

School gender mix—In order to gauge whether gender differences in the educational environment are related to PLK, the link between school gender mix and performance on the map tests was investigated. Single-sex schools were not significantly distinct from coeducational school in their association with PLK, however.

Media Influences

Television—The concept of place and the relationship of specific locations to their surroundings are themes that permeate much of today's media. Unlike Donovan (1992/1993), who found no significant relationship between television viewing and geographic literacy, this study did find both general and geography-specific television viewing to be significant in explaining Irish students' PLK. There was a divergence in the nature of the association between

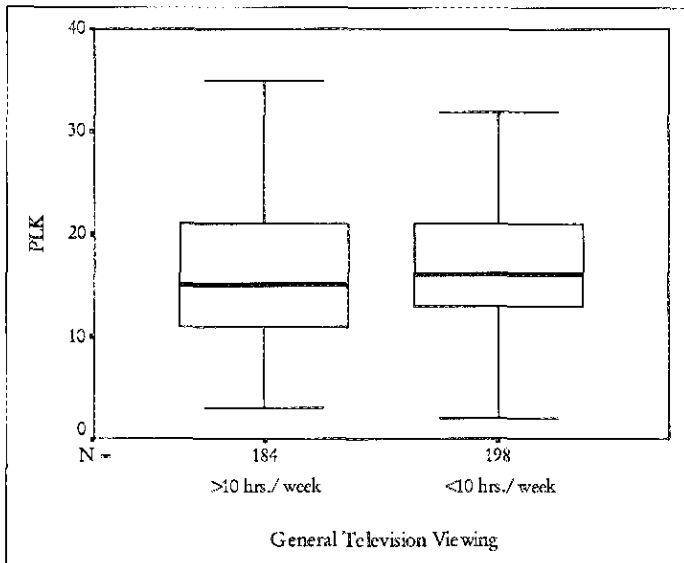


Figure 9. PLK and General Television Viewing.

PLK and television, however. General television viewing appeared to exert a negative influence on PLK, with students who watched less than ten hours per week of television performing just over a point better than respondents who watched television more frequently (over ten hours per week; Figure 9).

This may suggest that students who spend more time watching general television do so at the expense of other activities that might supplement their PLK. However, it is more likely that general television programming is a poor PLK educator. Indeed, it was found that respondents who watched television programs with a high degree of geographical content (for example, travel documentaries)

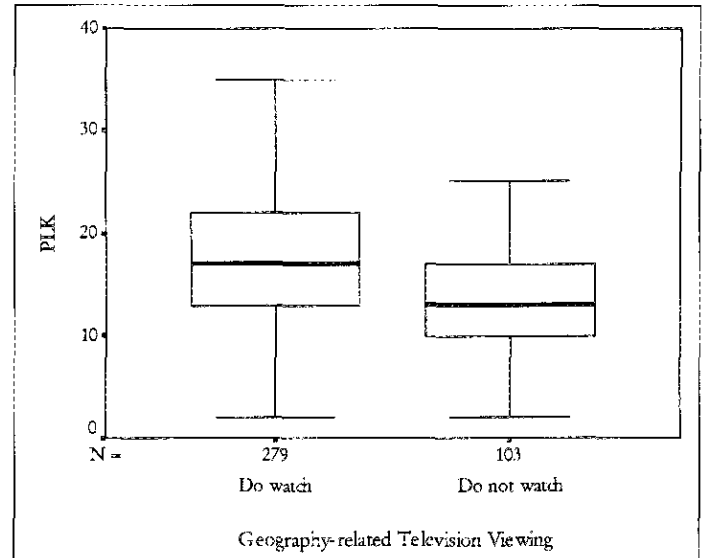


Figure 10. PLK and Geography Related Television Viewing.

actually recorded a much higher level of PLK, controlling for all other examined factors (Figure 10). Furthermore, this variable was statistically significant for PLK.

Newspapers—Newspaper reports often situate events or phenomena in a geographic context. However, this study found no significant association between PLK and newspaper reading habits. This finding stands in contrast to those of the Gallup Organization (1988), which found that exposure to books and magazines influenced American adults' geographic literacy. Cross (1987) also found that mass media and news were influential in shaping the PLK of American university students. Similarly, Donovan (1992/1993) discovered that international news reading was significantly related to the geographic literacy of the adults and students he tested. However, other studies have found that newspapers are an inadequate PLK educator. Both Balchin (1985) and Chipperfield (1994) have suggested that newspaper reading is a poor determinant of PLK.

Radio—It was hypothesized that radio and PLK would be significantly associated. Radio news commonly cites events in terms of their location. Furthermore, much of today's popular music has been placed by the media in the context of geographical "scenes" where a number of artists sharing common musical traits have emerged, commonly in the same city (Seattle, Washington is perhaps the most obvious example in recent years). While it appeared that radio might have an impression on students' PLK, such an association was not found in this study.

CONCLUSIONS

The finding that Irish students exhibit a level of PLK deficiency will hardly startle many of the journal's readers. What is surprising, however, is that Irish students' PLK has not made any apparent advances in recent years. Irish students still share the PLK difficulties of their

American counterparts. Irish PLK deficiencies have been recognized for many years, but little has been done to address this problem. PLK has been overlooked perhaps because the mechanisms driving it are not fully understood. In examining the forces underlying students' PLK this study did, however, identify the same determinants apparently influencing American students and those abroad. It also distinguished many of the same site characteristics that rendered certain locations more visible than others.

The relative visibility of certain place locations in comparison with others can be attributed to a number of factors. The site characteristics of tested place locations that were most readily identified were those close to Dublin, on the periphery of a landmass, in more developed nations, with a large area, with a stable geography, and in an island setting. EU membership, media profile, and historical significance played only a minor role in place visibility.

The association between a number of hypothesized student-specific characteristics and PLK were modeled statistically in order to assess their relationship. Those characteristics were broken down into personal traits and behaviors, educational background, and respondents' media exposure and were modeled in such a fashion as to exclude confounding influences among tested variables. Gender, local and European travel, geography examination grades, as well as general and geography-specific television viewing were all statistically significant for PLK. PLK was not significantly related to age, world travel, socioeconomic background, location, nationality, level of geography and history education, school gender mix, newspaper reading, or radio listening.

STRATEGIES TO IMPROVE PLK

The conclusions of this study and others unveil a serious deficiency in the provision of geographic education in our schools that must be addressed. Certainly there is much that can be done to improve PLK through the education system. It would appear that amidst the contemporary geographical specialization that has been particularly evident at university level, the fundamental importance of PLK has been overlooked. The notable lack of significance of educational influences in shaping PLK suggests a need for a back-to-basics approach in the classroom. If a coordinated effort was begun at university level it may trickle down to secondary level education. Educators may be guilty of an isolationist approach to place location education, dwelling on areas close to home. Geographic education may be failing students in regard to distant foreign areas. This may well be the case in Ireland, where the educational emphasis at secondary level is weighted heavily upon proximal regions, notably Western Europe, at the expense of distant communities. Perhaps, as Wise (1975) suggests, "a geography with a global soul is necessary" (p.31). Wise also noted a "widespread and quite

unnecessary lack of basic world knowledge among many who are genuinely interested in becoming effective teachers" (p.31). Perhaps the importance of place location learning needs to be reaffirmed. Moreover, the way we teach PLK needs to be addressed. Rather than having students memorize lists of locations by rote learning, teachers should stimulate pupils' place location learning.

Stimpson (1991) argued that students need to understand why the location of a site is important for them to remember, and so place location learning should always be framed in an environmental context. He also suggested reducing countries to simple geometric shapes to facilitate place location learning. Chiodo (1993) listed a number of stimulation exercises that improved students' PLK. Rather than filling in details on outline maps, it is suggested that students be asked to construct their own maps from scratch. Pupils could be required to draw maps from memory, which may be compared to commercial maps to judge their accuracy. Students might then be asked to make the appropriate corrections and the maps could be referred to for future review. Chiodo also found that cutting up maps and having pupils reconnect the pieces was a valuable tool in place location education, as was asking students to tear out the shape of countries or regions from blank sheets of paper. Bednarz (1995) and Luft (1992) have suggested entirely different approaches. Bednarz found that using key word mnemonics—phrases or words which sound like or conjure up an image of a site that aids memory and recall of that location—in association with attention-enhancing techniques such as frequent review improved students' PLK. Alternatively, Luft suggested that examining automobile license plates from different states or territories could be useful in improving students' place location abilities.

This study's findings regarding the positive influence that geography-specific television viewing has to bear on PLK suggests additional means by which PLK may be communicated in the classroom. Perhaps teachers should identify the programs that are influencing their students' PLK and embrace television as an instructional tool. For teachers with access to computer resources and the World Wide Web, the task of teaching PLK in a stimulating and innovative manner has been made easier. A number of educational products are available that might better facilitate PLK education, most notably digital atlases and encyclopaedias equipped with multimedia capabilities. Teachers could even coordinate their teaching efforts with distant schools over the Internet and in doing so expose their students to a real-life PLK education.

It is widely accepted that there is a connection between gender and PLK but there is little consensus about the motivation underlying that link. A serious need exists to discern how gender imbalances in PLK might be addressed and to investigate what role, if any, geographical

education has in propagating this dichotomy. Of course, while those issues are being addressed there is also a need for further investigations into the nature of the PLK-gender link.

Place location is an important skill in which students should have an adequate grounding. The findings of this study and others like it highlight that it needs much greater attention in our classrooms. Convincing teachers and students of the many practical values that PLK holds is perhaps a large part of the battle. But the real challenge is teaching PLK in a manner that makes it accessible for both the teacher and the pupil. Ireland has recently undergone a period of transition, one in which its economic activities and social customs have begun to feature on a global arena to a much greater extent than at any time in its history. If Ireland wishes to continue to reap the benefits of global trade and interaction and if its population is to make a bid for global citizenship, then PLK should be regarded as an important prerequisite.

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