





80 8:& )LUVW XWLOL]LQJ WKH REVHUYDWLRQDO VWXG\ DV D SLOF  
DQG SODQQHG IRU WKH \H DU IROORZLQJ WKH REVHUYDWLRQDO V  
SHULRGV RI WKH DERYH OLVWHG JUDQWV 6HFRQG D GLVFXVVL  
VFDOLQJ RI WKH SRWHQWLDLQWHUYHQWLRQ VWXG\ )LQDOO\ D  
WR HQVXUH WKH WUDMHFWRU\ RI WKHVH SURMHFWV PDNH VHQVH  
SROLFLHV DLPHG WR EH LPSDFWHG

\$GGLWLRQDOO\ VHYHUDO VPDOOHU VWXGLHV DUH EHLQJ GLVFXV  
OHYHO GDWD WR VHH ZKHUH SROLF\ LV XQFHUWDLQ LQ UHJDUGV

\$GGLWLRQDO 2EMHFWLYHV ± 6HPLQDU 3RVWHU DQG 0DQXVFUL

/DVWO\ VHYHUDO RWKHU REMHFWLYHV ZHUH FRPSOHWHG GXULQJ  
PDQXVFULSW )LUVW D KDOI GD\ VHPLQDU ZDV UXQ DW WKH 8QLY  
+HDOWK ZKHUH , SUHVHQWHG RXU ZRUN IURP 0LVVRXUL 6 7 DQG  
WKH 6RXWK \$IULFDQ FRQWH[W

6HFRQG IURP WKH HDUO\ ZRUN DURXQG GHYHORSLQJ D IUDPHZRU  
LPSDFW D SRVWHU ZDV VXEPLWWHG 'DQWHSUHQG DQG 0DQXVFULSW  
)RRG 6HFXULW\ LQ &DSH KWRZQ ZZH JOREDO IRRG VHF XULW\ EQDOLGH  
UHVHDUFKHUV IURP WKUHH GLIHUHQW XQLYHUVLWLHV LQFOXGLQ

)LQDOO\ WKH DQDO\VLV FRQGXFWHG LQ FROODERUDWLRQ ZLWK F  
GDWD ZDV WXUQH G LQWR D PDQXVFULSW DQG LV FXUUHQWO\ JRL  
PDQXVFULSW WR WKH -RXUQDO RI :RUOG 'HYHORSPHQW RU VRPHW

7LPHOLQH RI \$FWLYLWLHV DQG 0HHWLQJV

+HUH , SURYLGH D VXPPDWLYH WLPOLQH RI NH\ DFWLYLWLHV DQ

-XQH<sup>G</sup> ± \$UULYH DQG EHJLQ ZRUN DW WKH 'HYHORSPHQWDO 3D  
WKH 8QLYHUVLW\ RI WKH :LWZDWHUVUDQG DW WKH %DUDJZDQDWK

-XQH<sup>G</sup> WK ± :RUNHG WR HGLW YDOLGDWH DQG WHVW PDWHULD  
PRQLWRULQJ WR EH GHSOR\HG LQ DQ REVHUYDWLRQDO VWXG\ EH

-XQH<sup>WK</sup> QG ± \$WWHQGHG WKH \$PHULFDQ \$VVRFLDWLRQ RI (QYL  
6FLHQFH 3URIHVVRUV LQ \$QQ \$UERU 0, WR SUHVHQW ZRUN RQ LQ

-XQH<sup>WK</sup> -XO<sup>WK</sup> ± +HOG PXOWLSOH URXQG WDEOHV GLVFXVVL  
GHYHORS RXU IUDPHZRUN RQ LQIHFWLRXV GLVHDVH WUDQVPLVVL

-XO<sup>WK</sup> WK ± :KLOH PRVW RI RXU ZRUN ZDV IRFXVHG RQ ORZ LQF  
HQYLURQPHQWV ZH YLVLWHG WKH UXUDO ILHOG VLWH UXQ E\ FR  
SURMHFWV ZLWK XQLTXH VWXG\ GHVLJQV PHWKRGJRORJLHV IRU HG

-XO\<sup>WK</sup> WK ± &RPSDULWHG WULS ZLWK UHVHDUFKHUV IURP :LWV  
8:& LQ &DSH 7RZQ 'LVFXVVLQRQV ZHUH KHOG RQ WKH VSHFLILFV D  
\$GGLWLRQDOO\ , SODQQHG E\ ORQJHU VWD\ LQ &DSH 7RZQ DQG V

-XO\<sup>WK</sup> WK ± 'XULQJ WKHVH WZR ZHHNV ZH EHJDQ WR GHYHORS  
ZRXOG EXLOG RII WKH REVHUYDWLRQDO VWXG\ ZLWK WKH DLP RI  
LPSURYLQJ FKLOG JURZWK UDWHV

\$XJXVW 6HSWHP EHU ± 9LVLWHG &DSH 7RZQ WR ZRUN ZLWK UHVHD  
&R( RQ DSSO\LQJ VWUXFWXUDO HTXDWLRQ PRGHOLQJ WR QDWLRQ  
GLDUUKHDO RFFXUUHQFHV DQG V\VWHPLF LQIODPPDWLRQ

6HSWHP EHU ± 5HWXUQHGH WR -RKDQQHVEXUJ DQG SDUWLFLSD  
PHHWLQJV IRU QH[W VWHSV LQ RXU FROODERUDWLRQV

6HSWHP EHU ± 5HWXUQHGH WR WKH 86

, DP YHU\ JUDWHIXO IRU WKH VXSSRUW SURYLGHG E\ 806\$(3 80 8:  
RXWSXWV RI WKLV WULS DUH RI KLJK TXDOLW\ DQG ZLOO DOORZ  
LV DWWDFKHG WR WKLV UHSRUW DQG WKH PDQXVFULSW ZLOO EH

.LQG UHJDUGV

/HH ( 9RWK \*DHGGHUW 3K ' ( , 7  
(QYLURQPHQWDO 6\VWHPV (QJLQHUU  
0LVVRXUL 8QLYHUVLV\ RI 6FLHQFH DQG 7HFKQRORJ\